

A P P E A R A N C E S

For the Plaintiffs:

MR. W.A. DREW EDMONDSON
MS. KELLY FOSTER
Office of Attorney General
State of Oklahoma
313 N.E. 21st St.
Oklahoma City, OK 73105

MR. DAVID RIGGS
MR. DAVID P. PAGE
MR. RICHARD T. GARREN
Riggs Abney Neal
Turpen Orbison & Lewis
502 W. 6th Street
Tulsa, OK 74119

MR. ROBERT A. NANCE
MS. KELLY FOSTER
Riggs Abney Neal
Turen Orbison & Lewis
5801 Broadway
Oklahoma City, OK 73118

MR. LOUIS W. BULLOCK
MR. ROBERT BLAKEMORE
Bullock Bullock &
Blakemore
110 W. 7th St.
Suite 770
Tulsa, OK 74119

MR. FREDERICK C. BAKER
MS. ELIZABETH CLAIRE XIDIS
MS. INGRID L. MOLL
Motley Rice LLC
28 Bridgeside
P.O. Box 1792
Mount Pleasant, SC 29465

10430

A P P E A R A N C E S (Cont.)

For Tyson Foods:

MR. ROBERT W. GEORGE
Tyson Foods, Inc.
2210 West Oaklawn Drive
Springdale, AR 72701

MR. FRANK R. VOLPE
MR. MARK D. HOPSON
MR. THOMAS C. GREEN
MR. JAY THOMAS JORGENSEN
MR. GORDON D. TODD
ERIC J. IVES
CARA R. VIGLUCCI LOPEZ
Sidley Austin LLP
1501 K St. NW
Washington, DC 20005

MR. PATRICK MICHAEL RYAN
Ryan Whaley Coldiron and
Shandy PC
119 N. Robinson, Rm 900
Oklahoma City, OK 73102

For Cargill:

MR. JOHN H. TUCKER
MS. THERESA HILL
Rhodes Hieronymus Jones
Tucker & Gable
100 W. 5th St., Ste 400
Tulsa, OK 74103

MR. DELMAR R. EHRICH
MS. KRISANN KLEIBACKER LEE
Faerge & Benson
90 S. 7th St., Ste 2200
Minneapolis, MN 55402

For Simmons Foods:

MR. JOHN R. ELROD
MS. VICKI BRONSON
Conner & Winters
211 E. Dickson St.
Fayetteville, AR 72701

10431

A P P E A R A N C E S (Cont.)

For Peterson Farms:

MR. A. SCOTT MCDANIEL
MR. PHILIP HIXON
MS. NICOLE LONGWELL
McDaniel Hixon Longwell &
Acord PLLC
320 S. Boston, Ste 700
Tulsa, OK 74103

For George's:

MR. GARY V. WEEKS
MR. WOODY BASSETT
MR. VINCENT O. CHADICK
MS. K.C. TUCKER
Bassett Law Firm
P.O. Box 3618
Fayetteville, AR 72702

For Cal-Maine:

MR. ROBERT SANDERS
Young Williams P.A.
P.O. Box 23059
Jackson, MS 39225

MR. ROBERT P. REDEMANN
Perrine McGivern Redemann
Reid Berry & Taylor PLLC
P.O. Box 1710
Tulsa, OK 74101

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WITNESSES ON BEHALF OF THE DEFENDANTS

MICHAEL DICKS, PH.D.

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1 Monday, January 11, 2010

2 * * * * *

3 THE COURT: We had our pretrial in the
4 criminal matter Friday. It is going to trial. That
5 would have been only a three-day week for you anyway,
6 and it's likely that that case will take three days as
7 well. It's a child pornography-type case.

8 Mr. Green.

9 MR. GREEN: Well, that probably impacts
10 a little bit of what I was going to discuss with you
11 this morning, and that is to give you some further
12 insight into our assessment on the schedule.

13 THE COURT: Yes, sir.

14 MR. GREEN: We have four witnesses left,
15 Your Honor.

16 THE COURT: Yes, sir.

17 MR. GREEN: Mike Dicks from OSU; Tim
18 Sullivan, one of our experts; Herman Gibb, one of our
19 experts, and Mike McGuire, one of our experts.

20 It's our best assessment that we will finish
21 all that testimony, both direct and cross, fingers
22 crossed, by the end of Wednesday, although there could
23 be some spillover to Thursday of this week. We were
24 contemplating asking the plaintiffs to provide us as
25 much guidance as they could about rebuttal and the

1 length of rebuttal and disclosures concerning any
2 rebuttal. It was our contemplation that rebuttal
3 would be reasonably brief and to the point and we
4 were banking on perhaps a day or day and a half of
5 rebuttal because we have some serious reservations
6 about whether there is room for a lot of rebuttal in
7 this case.

8 That would take us into the early part of
9 next week, absent what you just told us. And then I
10 was going to suggest that we all stay here and we
11 would make a -- at the close of the evidence we would
12 renew or motions but it would be a formality, it would
13 not be any real extensive argument at all, but to
14 renew our motions for the record.

15 And then we had caucused and decided to
16 abandon asking you for the opportunity to submit any
17 briefs and instead ask you if we could move directly
18 to closing, the more orthodox and traditional format,
19 because we're all here and the evidence is fresh in
20 everyone's mind.

21 Now that scheduling now is a little bit
22 skewered by virtue of your schedule, unless there was
23 any possibility -- and I don't mean to be
24 presumptuous -- that perhaps that -- if we could
25 finish next week whether that trial could be pushed a

1 week. But, I mean, I --

2 THE COURT: As you know having, as I
3 understand it, lots of criminal experience, those
4 matters take priority.

5 MR. GREEN: Yeah.

6 THE COURT: So we need to attend to
7 that. This will afford you all the opportunity to
8 embrace this massive amount of evidence and maybe put
9 it in a better perspective and edit in your own minds
10 that which is most important --

11 MR. GREEN: Right.

12 THE COURT: -- and try to put it
13 together. I think by taking a few days and actually
14 thinking about all this, it will distill it perhaps a
15 bit better. So let's approach it in that fashion.

16 MR. GREEN: Okay. And then the last
17 observation is simply that with respect to time for
18 closing, we feel, given what plaintiffs have
19 indicated, that we're in for with your indulgence
20 probably a full day, we think that collectively the
21 defendants will need somewhere between three and three
22 and a half hours to get everyone their opportunity to
23 talk specifically about their own client.

24 THE COURT: So we're basically talking a
25 full day for both sides?

1 MR. GREEN: Full day of closing.

2 THE COURT: For a case like this, I
3 don't think that's unreasonable.

4 MR. GREEN: It would be helpful if, you
5 know -- at some time before we adjourn this week, it
6 would helpful to us if we could somehow, you know,
7 schedule these remaining days, I mean, you know, when
8 we will reconvene for rebuttal, how many days and when
9 closing will be. Because we have, you know, a big
10 logistical operation here and we have to keep that
11 kind of running until --

12 THE COURT: Well, we may well have
13 rebuttal beginning next week --

14 MR. GREEN: Well, that would be -- I
15 mean, that would be great.

16 THE COURT: -- if your correct. And
17 then if it works out that way, then we begin with
18 argument on the 25th; correct?

19 MR. GREEN: Yes. So you would
20 contemplate that next week we're off the entire week?

21 THE COURT: I think without question.
22 It's a three-day week because of Martin Luther King.
23 The prosecution has eleven witnesses. They're going
24 to bring them in from Peru, you know, and they have to
25 bring these officers in to show that these are truly,

1 you know, little girls under the age of ten, that sort
2 of thing.

3 MR. GREEN: Yeah, yeah. Okay.

4 THE COURT: So --

5 MR. GREEN: All right, sir. Thank
6 you.

7 THE COURT: Mr. Bullock. Just one
8 second. I'm sorry.

9 *(Discussion held off the record)*

10 THE COURT: The rulings on the Peach
11 deposition will be entered here within the next half
12 hour. So I take it Peach is another witness in
13 addition to the four; correct?

14 MR. GREEN: Yes.

15 THE COURT: All right. Mr. Bullock.

16 MR. BULLOCK: We are working on -- we
17 first got notice that they might wrap up this week
18 yesterday and we're working on the rebuttal. I think
19 probably Mr. Green's right in terms of I would expect
20 a day and a half of rebuttal. Those things that we're
21 talking about are appropriately discreet. It's a
22 matter of getting witnesses and scheduling them, and
23 I'm not quite sure where that process is this morning.

24 As for the schedule, though, in terms of
25 argument and briefing, it's just -- the court might

1 consider something that I know I've had in several of
2 these bench trial cases, that we file our findings,
3 which the court has said ten days after the close of
4 the evidence, and that we then have argument.

5 That might allow the court -- the parties,
6 first of all, to do what the court suggests, and that
7 is to work through this pile of evidence and sort out
8 what they see as most important concepts for the court
9 to grasp, and also for the court to then be in a
10 position to be able to anticipate and ask us
11 questions. It is my belief on oral argument is that
12 if it serves any purpose, it is to give the judge a
13 chance to question the lawyers so that we can give him
14 our view of the things which are concerning the bench.

15 So that's my suggestion in terms of how we
16 might handle that part.

17 THE COURT: That's compelling. As
18 you've all experienced here, there are so many issues
19 that in many cases, as the court's been presented with
20 certain issues and had an opportunity really to focus
21 on a particular issue, there's been more clarity than
22 one previously understood. There are just so many
23 individual issues you have to focus on them one at a
24 time to really get your arms around this case. So
25 there's some merit in that suggestion.

1 And, Mr. Green, I take it that you've not
2 been presented with that suggestion until now?

3 MR. GREEN: No. I heard that from
4 Mr. Bullock moments before Your Honor came to the
5 bench.

6 I can't speak for the group, but I know the
7 consensus from this morning was strongly held that we
8 would like to have argument as close as possible to
9 the end of the -- end of the case, believing that the
10 evidence would be as fresh as possible in everyone's
11 mind and it would be the best possible --

12 THE COURT: It may be impossible going
13 back to September.

14 MR. ELROD: We want a hot jury, Your
15 Honor.

16 THE COURT: Well, let's see how things
17 play out this week. Obviously, if we don't get on all
18 the rebuttal, then that plays havoc with the one
19 suggestion.

20 So let's take our first witness.

21 MR. ELROD: Call Dr. Michael Dicks.

22 **MICHAEL R. DICKS, PH.D.,**
23 ***after having been first duly sworn, says in reply to***
24 ***the questions propounded as follows, to-wit:***

25 THE COURT: State your full name for the

1 record, please.

2 THE WITNESS: Michael Richard Dicks.

3 **DIRECT EXAMINATION**

4 **BY MR. ELROD:**

5 Q. Good morning, Dr. Dicks.

6 A. Good morning.

7 Q. How are you, sir?

8 A. Pretty good.

9 Q. Start with your qualifications and your
10 educational background. You did testify at the PI
11 hearing in this case; is that correct, sir?

12 A. That's correct.

13 Q. And is a lot of your testimony today going to
14 be along the same lines as your PI testimony?

15 A. I believe so.

16 Q. And, Doctor, are we going to try to
17 accomplish your direct in about an hour?

18 A. I would hope.

19 Q. Yes, sir. Doctor, what is your educational
20 background, please?

21 A. I have a bachelor's degree in animal science
22 and in biochemistry from California Polytechnic State
23 University, and a master's degree and Ph.D. in
24 agricultural economics from the University of
25 Missouri.

1 Q. And what was your master's thesis?

2 A. My master's thesis was about the
3 waste methane production from waste in Tunisia.

4 Q. And what was your doctoral thesis?

5 A. The doctoral thesis pertained to conservation
6 programs -- the conservation easement program, now the
7 Conservation Reserve Program, as it applied and the
8 impacts of the program on the corn belt in the United
9 States.

10 Q. Dr. Dicks, I have -- there's a note right
11 here that says "slow down." That's for both of us.

12 A. I got a big one right up here, John.

13 Q. All right. Thank you. What's your current
14 employment, sir?

15 A. I'm currently the Lou and Wes Watkins Endowed
16 Chair of International Trade and Development at
17 Oklahoma State University.

18 Q. Wes Watkins was the well-known Oklahoma
19 congressman?

20 A. Yes, sir.

21 Q. So what is your area of specialization, if
22 you have one, at OSU right now?

23 A. My specialty area has been, and continues to
24 be, agricultural policy and within that my area is
25 land use.

1 Q. And you've been at OSU since 1989; is that
2 correct, sir?

3 A. That's correct.

4 Q. What courses -- what senior-level courses do
5 you teach?

6 A. I teach a senior-level course in American
7 agricultural policy and one in advanced farm and ranch
8 management.

9 Q. And what does the advanced farm and ranch
10 management class entail, sir?

11 A. Basically, that class prepares the students
12 to be able to do a business plan and a financial
13 analysis of farming and ranching operations.

14 Q. How many students do you have in that class?

15 A. It depends on the year. Somewhere between 20
16 and 45.

17 Q. And from how many states are they in the
18 United States?

19 A. There's a number of -- over the years, I
20 think we've probably had students from as many as 40
21 different states.

22 Q. What do you have them do in that class?

23 A. Each student is required as a -- as a project
24 to do an actual business plan and financial analysis
25 of a specific farm, ranch, or agribusiness.

1 Q. All right. Do they normally make those plans
2 based on their own individual backgrounds?

3 A. Some of them do their own family farms, some
4 of them find farms other places, and sometimes they
5 come to me and ask me for farms or ranches or
6 agribusinesses that they can do.

7 Q. Have you also been involved in something
8 called the "Great Plains Agricultural Policy
9 Center"?

10 A. That's correct.

11 Q. What is that?

12 A. One of my former colleagues and I started
13 that center at Oklahoma State University, I believe,
14 in 1990. I was the director of that center for five
15 years. The purpose of that center was to provide
16 Congress with the economic analysis of various farm
17 programs and policies.

18 Q. And have you worked in Washington, D.C. for
19 periods of time?

20 A. Yes, sir.

21 Q. Tell the judge what your USDA experience is.

22 A. I was employed by United States Department of
23 Agriculture's Economic Research Service for about five
24 years.

25 Q. Between what year and what year?

1 A. From 1984 to 1989, I believe.

2 Q. Immediately prior to coming to OSU?

3 A. Correct.

4 Q. All right, sir. And what did you do while
5 you were at the Department of Agriculture, please?

6 A. My first assignment there was as a natural
7 resource policy analyst.

8 Q. What does a natural resource policy analyst
9 do when he shows up for work at nine o'clock in the
10 morning.

11 A. Well, a natural resource policy analyst
12 actually shows up to work at about five o'clock in the
13 morning and stays until about ten at night, seven days
14 a week.

15 Q. All right.

16 A. But what we're there to do is, we work for
17 the Secretary of Agriculture and he needs guidance on
18 farm programs and policies, and so those things that
19 Congress envisions doing or that the Secretary of
20 Agriculture envisions doing come to us for analysis.

21 Q. And have you also advised Congress on farm
22 bills?

23 A. I have.

24 Q. What farm bills?

25 A. 1981, 1985, 1990, 1996, 2002, and 2008.

1 Q. I take it a new farm bill occurs about twice
2 a decade?

3 A. It has recently, yes.

4 Q. All right, sir. And what has been your role
5 in terms of the farm bills?

6 A. As I said, it's varied depending on what
7 position I've held. When I was at the University of
8 Missouri, a lot of that was for Senator Bond of
9 Missouri who was on that Senate agricultural
10 committee. While I was with the Department of
11 Agriculture, it was mostly for the secretary. And
12 while I've been at OSU, it's been for various
13 representatives and senators.

14 Q. Have you testified before Congress?

15 A. Yes, I have.

16 Q. Approximately how many times?

17 A. Oral testimony -- the total amount of times
18 that I've addressed Congress has been about ten times.
19 Orally I think five, six times and the others were
20 written.

21 Q. Have you been involved in the CREP program,
22 Conservation Reserve -- what is CREP?

23 A. It's the Conservation Reserve Enhancement
24 Program.

25 Q. All right, sir. Tell the judge about your

1 involvement in CREP.

2 A. Well, CREP is a component of the Conservation
3 Reserve Program. The Conservation Reserve Program is
4 a program that I instigated in 1982. It became a
5 program and the first conservation title in the 1985
6 Food Security Act. That program then -- later on that
7 Conservation Reserve Enhancement Program was brought
8 forth, I think, in 2002 to provide states the ability
9 to look at specific environmental concerns that they
10 had that weren't specifically covered by the
11 Conservation Reserve Program.

12 That's a cost-share program where the state
13 provides so much money for that program and the
14 Federal Reserve -- or the federal government provides
15 the addition, and usually that's in about a 20 to 80
16 percent or 25 to 75 percent ratio.

17 Q. What was your role in developing the CREP
18 program? Were you there at day one?

19 A. Let's see. What was my role? Basically, all
20 I did was do some of the analysis to show what could
21 be done with the Conservation Reserve Program as a
22 point in looking at the Conservation Reserve Program
23 itself.

24 Q. All right, sir. And have you been involved
25 in obtaining research grants for OSU?

1 A. Yes.

2 Q. Approximately how many dollars over time?

3 A. Over 2 million.

4 Q. Have you also been involved in the
5 development of economic models?

6 A. Yes, I have.

7 Q. Start -- how many? Two or three?

8 A. Three or four.

9 Q. All right. Just briefly tell the court what
10 they are and what they do?

11 A. The first model system that I developed goes
12 back to my days in the USDA Economic Research Service.
13 It was called a resource allocation summary system.
14 That model was a linear programming model that helped
15 analysts look at the changes in the spatial use of
16 land given various policies.

17 Q. What else?

18 A. Second model was a model -- in the old days,
19 we had -- when we had microcomputers and we had a
20 large mainframe, it took many hours to run a lot of
21 these large models, and one of the models we had was
22 the IMPLAN model, which is an input/output model, a
23 spatial equilibrium type of model --

24 Q. Are you going to use the IMPLAN model in your
25 testimony here today, sir?

1 A. I am.

2 Q. All right. Go ahead.

3 A. And as an analyst, we're required constantly
4 to look at the economic consequences of commodity
5 programs on various congressional districts.

6 Q. Various what?

7 A. Congressional districts. So in order to do
8 that, we use the IMPLAN model. And rather than having
9 to fly out to Fort Collins where the mainframe model
10 was kept, I developed a comprehensive model that was a
11 micro -- a microcomputer version of that model that
12 allowed you to look at changes in wheat demand,
13 changes in corn demand, those commodities, anything in
14 the agricultural sector, and be able to determine what
15 the multiplier impacts of that would be.

16 Q. All right, sir. What other models have you
17 been instrumental in developing?

18 A. The model that's most widely used continually
19 today is called "POLYSIS." That model started with
20 Dr. Darrell Ray, who did the demand component of that,
21 and I did the supply component of that. That model
22 was built at Oklahoma State University and now resides
23 at University of Tennessee.

24 Q. All right, sir. Have you -- are you
25 peer-reviewed?

1 A. Yes, sir.

2 Q. Approximately how many peer-reviewed articles
3 have you written?

4 A. In the journals, I have over thirty
5 peer-reviewed journals, and in periodicals, various
6 USDA publications, I probably have over a hundred.

7 Q. And presentations?

8 A. Well over a hundred.

9 Q. Do you have any current involvement with the
10 USDA?

11 A. I do. I still advise and do work for Farm
12 Service Agency, Natural Resource Conservation Service,
13 and Economic Research Service.

14 Q. And what about the Department of Energy; do
15 you do any work with it?

16 A. Yeah. Currently, I'm in charge of the data
17 and GIS component of the Sun Grant Initiative for the
18 Department of Energy.

19 Q. Are you, yourself, a farmer?

20 A. I am.

21 Q. What kind of a farmer are you, sir?

22 A. I'm not a very good one apparently.

23 Q. All right. What --

24 A. I raise -- I raise purebred Angus cattle, do
25 a little bit of small grain production and hay.

1 Q. How long have you been doing that?

2 A. How long have I been farming or --

3 Q. How long have you been --

4 A. I've had this particular operation since
5 1990, Cimarron Dunes Angus.

6 Q. Is it near Stillwater?

7 A. It is.

8 Q. Where you live?

9 A. That's correct.

10 Q. Do you live on the farm?

11 A. I do.

12 Q. All right. Do you advise on agricultural
13 issues in other countries in the world?

14 A. Yes, sir.

15 Q. Such as?

16 A. The countries?

17 Q. Yes, sir.

18 A. Currently, I'm working in Costa Rica, Sierra
19 Leone, Kenya, Mozambique, South Africa, Rwanda.

20 Q. What do you do when you advise in those
21 countries? Are you advising their governments or are
22 you advising the United States? What are you doing,
23 please?

24 A. It depends. In some case, I'm advising the
25 government in terms of policy. In some cases, I'm

1 working with local farm groups or local cooperative
2 groups. And sometimes I'm working for our country or
3 NGOs.

4 I should have thrown in Afghanistan. I'm
5 also working with Oklahoma National Guard in
6 Afghanistan.

7 Q. The Oklahoma National Guard in Afghanistan?

8 A. Yes, sir.

9 Q. What are you doing?

10 A. I don't want to go into a lot of detail. I'm
11 not sure what I can or can't say. But --

12 Q. We'll keep it --

13 A. Yeah. We've shifted kind of our emphasis
14 into more economic development with our military, and
15 the Oklahoma National Guard is an area of Afghanistan
16 trying to work with the people, much like a Peace
17 Corps volunteer would, in developing local
18 agricultural production.

19 Q. Were you in the Peace Corps?

20 A. Yes, sir.

21 Q. What years?

22 A. 1976 to 1969, about three and a half years.

23 Q. And where were you?

24 A. In Kenya.

25 Q. Dr. Dicks, did you work on this matter with

1 Dr. Rausser?

2 A. Yes, sir.

3 Q. And was your report joint?

4 A. Yes, it was.

5 Q. Did both of you work on it together?

6 A. We did.

7 Q. In its totality?

8 A. Correct.

9 Q. You split out your responsibilities in terms
10 of testifying in this courtroom; is that true, sir?

11 A. That's correct.

12 Q. What is it that you're going to address with
13 the court today?

14 A. I'm going to address the economic impacts of
15 the removal of the poultry litter within the IRW on
16 the farmers and the economy of the IRW.

17 Q. And in order for you to do that, has it also
18 been necessary that you make a rough calculation of
19 the STP levels in the watershed spread evenly over the
20 entire pastureland available to receive chicken
21 litter?

22 MR. GARREN: Leading, Your Honor;
23 objection to form.

24 THE COURT: Sustained.

25 Q. (BY MR. ELROD) Have you -- tell the court

1 what you've done in terms of calculation of
2 approximate STP values in the watershed.

3 A. In order for me to come up with a value to
4 put into -- a value of change and final demand in the
5 IMPLAN model, I had to come up with a statistical
6 approximation for an average value of STP in the
7 watershed.

8 Q. All right. To determine whether or not any
9 is still needed?

10 A. That's correct.

11 Q. Now, to be perfectly clear, tell the court in
12 terms of whether you looked at all the pastureland
13 available in the entire watershed to make this
14 calculation.

15 A. Right. We did not measure the STP value on
16 any single field. What we did was determine if
17 the -- if you applied the litter uniformly across the
18 watershed in that standpoint, what would be the STP
19 value that would have been there?

20 Q. And you've gone back to 1974 in making those
21 calculations; is that correct?

22 A. That's correct.

23 Q. All right. We're going to get into that
24 obviously in a greater particularity in a few minutes.

25 MR. ELROD: April, would you put up

1 Demonstrative 360, please?

2 Q. (BY MR. ELROD) Okay. This is a little bit
3 busy. What role does the chicken litter play in the
4 economy of the IRW?

5 A. I think the main point of this slide here,
6 the nutrient value flow in the IRW, is that really you
7 have a substance, poultry litter, that is a source of
8 nutrients. That source of nutrients, the value of
9 that, is captured and enhanced through the production
10 of forage and the production of hay. The value of the
11 forage and the hay is enhanced and captured through
12 the production of cattle by consuming that which is
13 sold which provides income for farmers.

14 Q. All right. Let's examine these boxes before
15 we get into this in any greater depth, and we're going
16 to come back and revisit this chart in a few minutes.

17 The upper left-hand box says, "poultry
18 provides 295,000 tons of litter"; correct?

19 A. That's correct.

20 Q. Where did you get that number?

21 A. That number was contributed by Billy Clay.

22 Q. All right. And if, in fact, the true
23 number -- and I suppose God would only know -- is
24 354,000 tons of litter, does that affect your analysis
25 or is it the same analysis?

1 A. The analysis would be the same; the outcome
2 might be different.

3 Q. All right. Now, if we move to the -- well,
4 would it be different in terms of your ultimate
5 conclusions in this case?

6 A. Yes.

7 Q. All right. Numerically?

8 A. Numerically.

9 Q. All right. We'll talk about that.

10 Move to the right, please. That box says,
11 "Required forage 2.26 tons per acre." What is forage?

12 A. Well, forage is the plant material that
13 cattle consume directly off the land.

14 Q. By grazing?

15 A. By grazing.

16 Q. We'll talk about hay in a second; correct?

17 A. Correct.

18 Q. So where did you get the number 2.26 tons per
19 acre being required for forage? We're going to get
20 into the analysis of the number, but just --

21 A. Sure.

22 Q. -- what's the purpose of that number?

23 A. Well, in order -- in order to feed the number
24 of animals that are in the watershed -- and they would
25 be fed eight months of the out year on that pasture --

1 you'd have to have 2.26 tons per acre on the acres
2 that are available uniformly across the watershed in
3 order to provide the green material for those eight
4 months to feed all those animals.

5 Q. Then the lower right-hand corner says,
6 "Required hay 1.92 tons per acre"?

7 A. That's correct.

8 Q. What's the purpose of that box?

9 A. The 1.92 tons per acre is the amount of hay
10 that would be required again to feed those animals
11 over a four-month hay-feeding period.

12 Q. Okay. And then we move to the lower center
13 box. Is that the number of cows that you are trying
14 to feed in the watershed with your proposition?

15 A. That's correct.

16 Q. And where did you get that number?

17 A. Again, those numbers were provided by Billy
18 Clay.

19 Q. All right, sir. And then the dollar sign is
20 representative of economic impacts of moving these
21 numbers around?

22 A. Right.

23 Q. All right, sir. Now, generally speaking, is
24 poultry litter less expensive or more expensive than
25 the nutrient equivalent of chemical fertilizers?

1 A. Normally, it would be less expensive.

2 Q. And how much phosphorus and nitrogen is in
3 one ton of poultry litter on average for your
4 analysis?

5 A. We used 60 pounds of phosphorus and 60 pounds
6 of nitrogen per ton of litter.

7 Q. And where did you get that number?

8 A. I think the literature is widespread in that
9 that's a fairly widespread determination.

10 Q. And did you include that information in your
11 report?

12 A. Yes, we did.

13 Q. Are there some typographical errors in your
14 report?

15 A. There are.

16 Q. Just a couple of them?

17 A. Pardon me?

18 Q. A couple of them?

19 A. Yes.

20 Q. I mean, it's not replete with them, is it?

21 A. No.

22 Q. All right. Would you tell the court and
23 counsel the two that need to be corrected for your
24 analysis?

25 MR. GARREN: Objection, Your Honor.

1 Since it's not an exhibit and will not be covered in
2 this case, I don't see the relevance of that.

3 MR. ELROD: That's fine, Your Honor. As
4 long as he's not cross-examined on it.

5 Q. (BY MR. ELROD) So are the numbers we're
6 discussing here today actually correct numbers?

7 A. They are correct.

8 Q. And you were deposed for a couple of days by
9 Mr. Garren subsequent to your report being issued,
10 were you not, sir?

11 A. Yes, sir.

12 Q. All right.

13 MR. ELROD: Now, April, would you pull
14 up Demonstrative 357, please?

15 Q. (BY MR. ELROD) Now, this also is a busy
16 chart, and let's spend a couple of minutes with it for
17 absorption time, please, Mike.

18 What is this chart displaying? And start to
19 the left and let's follow the arrows.

20 A. Okay. Just in general, this is a diagram of
21 the modeling framework that we went through. In
22 summary, there's about 35 Excel spreadsheets that went
23 in to develop the changes in final demand that were
24 necessary to put in the IMPLAN model.

25 On the left-hand side, we had to determine

1 the relative values of poultry litter and chemical
2 fertilizers. We also had do the average STP
3 calculation. We also needed -- at the bottom left
4 there, the hay and forage requirements, we've just
5 been through those, what would be required in order to
6 feed the cattle and to feed the dairy animals that are
7 in the watershed.

8 In the middle, probably the biggest block,
9 coming up with the cattle and hay production, all the
10 data that was relevant there in terms of poultry
11 numbers and cattle numbers, hay, hay output per year,
12 etcetera.

13 And then probably the key to the analysis is
14 the -- is the poultry, forage, and beef budgets. We
15 looked at those as separate enterprises and combined
16 them into an aggregate farm.

17 Q. Now, tell the -- I'm sure the judge knows,
18 but tell the record what a budget is in the sense that
19 you're using this term.

20 A. Yeah. A budget is an estimated revenue and
21 expense of all the categories. So it's just an
22 estimated -- everyone of us makes a budget and at the
23 end of the year, we're hope that we're close to it.

24 Q. And you've done that for poultry, forage, and
25 beef?

1 A. That's correct.

2 Q. Is there a symbiotic relationship between
3 poultry, forage, and beef in the IRW?

4 A. Yes.

5 Q. What is that symbiosis?

6 A. Again, as I showed earlier, the poultry
7 litter, it provides input nutrients for the forage and
8 hay production that is fed to the livestock. And,
9 again, the point there is to try to capture the
10 value-added component and the increased income of each
11 one of those activities.

12 Q. And then all of those go into your IMPLAN
13 model; is that true?

14 A. Well, any changes that we have in that budget
15 from a scenario where we have litter and a scenario
16 where we don't have litter, any of those changes in
17 output, that would be what would go into the IMPLAN
18 model.

19 Q. Then you push the start button and it spits
20 out information; is that fair?

21 A. That's correct.

22 Q. Is this a tried, true, and tested model?

23 A. I think IMPLAN -- the IMPLAN model itself is
24 probably one of the most written about, used, and
25 published models that we have in the United States.

1 Q. And could it apply to the impact of the
2 downturn of General Motors on Flint, Michigan, for
3 instance, as well as it could apply to what we're
4 talking about in this courtroom?

5 A. Yes, sir.

6 Q. All right. Now, were you -- to what decimal
7 point does the IMPLAN model take your numbers, your
8 input numbers?

9 A. Well --

10 Q. Did you have to do some rounding?

11 A. You know, throughout the -- throughout all
12 the spreadsheets and throughout the IMPLAN model, you
13 know, it's a spreadsheet and so it's going to
14 calculate out to ten decimal points, you know, if you
15 want to -- if you want to capture that.

16 When you start rounding up to whole numbers,
17 you are going to have some problems in columns not
18 adding -- not coming out the way that you'd expect
19 them to come out.

20 Q. With absolute precision?

21 A. Yeah.

22 MR. ELROD: Now, April, if you'd please
23 pull up Demonstrative 358.

24 Q. (BY MR. ELROD) Have you also calculated the
25 cost of poultry litter in the watershed?

1 A. Yes, we have.

2 Q. And by the way, is your testimony and your
3 presentation here today basically captive of the date
4 of your report?

5 A. Yes, it is.

6 Q. And your report was issued in December of
7 2008?

8 A. That's correct.

9 Q. All right, sir. So as of that time, the cost
10 of poultry litter was calculated by you to be what,
11 sir? And go through this chart, if you would.

12 A. Okay. So we looked at the cost of that
13 litter as it would be collected and applied on the
14 field. It would cost \$7 a ton to load it, \$2.50 to
15 market it, 17.8 cents per ton mile to transport it, \$7
16 per ton to spread it, if you did not own it and you
17 had to purchase it, it would cost \$12 per ton to
18 purchase.

19 So the total cost there, if you did not own
20 it within a ten-mile area, would be \$30.28. Now, if
21 you didn't -- if you did own it and you didn't have to
22 transport it, not only would you be able to subtract
23 out the \$12, but you'd also be able to subtract out
24 the \$1.78 transportation cost?

25 Q. So if you -- excuse me. Go ahead.

1 A. I think the numbers we used for ownership and
2 nonownership, if you owned the litter we assumed that
3 the cost was \$18.28; if you didn't own it, it was
4 \$30.28.

5 Q. All right. And transportation costs are
6 included in that number?

7 A. That's correct.

8 THE COURT: That assumes a ten-mile
9 radius?

10 THE WITNESS: That's within a ten-mile
11 radius.

12 Q. (BY MR. ELROD) Why did you pick a ten-mile
13 radius?

14 A. Just, you know, any farmer that wanted to
15 move it, if he had a farm, that's about as far as
16 you'd get from a home place to someplace that you're
17 running. It might be only five miles. It might be
18 three miles. Ten miles is about as far as we'd expect
19 somebody to carry their own litter.

20 Q. Their own litter for their own use on their
21 own farm?

22 A. Correct.

23 Q. Okay.

24 MR. ELROD: April, would you pull up
25 Demonstrative 359, please?

1 Q. (BY MR. ELROD) Now, compared to the cost
2 that you've just described for chicken litter, again
3 using the numbers in your 2008 report, what are the
4 costs of chemical fertilizer to replace the phosphorus
5 nutrient and nitrogen nutrients of litter?

6 A. Well, this is the cost of, assuming that
7 we're going to replace the same nutrients, 60 pounds
8 of nitrogen and 60 pounds of phosphorus. The
9 diammonium phosphate is the most commonly used form of
10 phosphorus. It's formulation is 18-46-00, which means
11 that it has 18 percent nitrogen, 46 percent
12 phosphorus. At the time we did the report, the cost
13 of that diammonium phosphate was \$1200 per ton. In
14 order to put on 46 -- sorry -- 60 pounds of phosphorus
15 with 46 pounds per hundred pounds of substance, you
16 would have needed to have put on 130.43 pounds of
17 substance. The cost of doing that would be \$78.26.

18 When you put on that 18-46, keep in mind
19 you've put on 130 -- now you've put on 130.43 pounds
20 of substance which has 18 percent nitrogen in it. So
21 now that you have roughly 22 pounds of nitrogen, you
22 don't have to put on as much Urea.

23 So the next calculation would be, how much
24 Urea then do I have to put on in order to make up the
25 difference between the amount of nitrogen that was

1 applied by the diammonium phosphate and the amount of
2 nitrogen that I need which is 60 pounds. So in that
3 case, you would need 79.4 pounds of Urea, which is 46
4 percent protein, at \$800 a ton which would be a price
5 of \$31.76.

6 Q. You said 46 percent protein. Did you
7 misspeak?

8 A. Sorry. Forty-six percent nitrogen.

9 Q. Okay. Go ahead.

10 A. That then would give you a mix that weighed
11 209 pounds and a cost of about \$110.02. To apply that
12 per acre and transport it would cost \$2.26 of
13 transport and \$1.59 to spread per acre, for a total
14 cost of delivery for 60 pounds of nitrogen and 60
15 pounds of phosphorus and a chemical fertilizer of
16 \$113.86.

17 Q. That's versus \$30.28 for the same nutrients
18 in chicken litter?

19 A. That's correct.

20 Q. Now, if counsel will permit, just tell us how
21 the price has changed from the date of your report
22 to -- for DAP and for Urea.

23 A. Well, of course, the current price -- because
24 of the economic situation the current price of
25 diammonium phosphate has fallen to about \$480 a ton

1 and the price of Urea has fallen to about \$420 a ton.
2 Those are bulk prices available at the Port of
3 Catoosa.

4 Q. And based on your investigation, Dr. Dicks,
5 are bulk fertilizers available inside the IRW?

6 A. I was not able to find a location within the
7 IRW for bulk fertilizers.

8 Q. Have to buy it bagged?

9 A. Have to buy it bagged.

10 Q. And what difference does that make, if any?

11 A. Well, normally bagged -- first of all, bagged
12 fertilizer, just the bagging is going to cost you
13 about \$20 a ton more, \$20 to \$30 a ton more.

14 And then you can understand that if I go and
15 pick up a spreader and have somebody load it with a
16 front-end loader of that chemical fertilizer, that's a
17 much different task than if I have to go and buy a ton
18 of bags. That's 40 bags, 40 50-pounds, and I have to
19 open up each one of them and dump them into a
20 spreader.

21 Q. Now, Doctor, is it your expectation that
22 these prices per ton for DAP and for Urea are going to
23 increase in the future back to where they were in
24 2008?

25 MR. GARREN: Objection; speculation,

1 Your Honor.

2 THE COURT: Sustained.

3 Q. (BY MR. ELROD) Do these prices typically
4 come and go in terms of cost?

5 A. Yes.

6 Q. And in 2008, was it one of the highest-priced
7 years in recent times?

8 A. It was. It was on trend to increase and will
9 probably return that way.

10 Q. And Urea --

11 MR. GARREN: Objection, Your Honor. Ask
12 that that be stricken as to what it probably will do.
13 That was not responsive to the question. It would
14 call again for speculation.

15 THE COURT: Sustained.

16 Q. (BY MR. ELROD) The price of Urea is
17 dependent upon the price of what basic resource?

18 A. Natural gas.

19 Q. All right. And is DAP, that phosphorus, a
20 mined phosphorus, m-i-n-e-d?

21 A. Diammonium phosphate is a -- comes from a
22 mined product that is then chemically mixed.

23 Q. And so it's an extracted resource?

24 A. It's an extracted resource, correct.

25 Q. Are we about to run out of it?

1 MR. GARREN: Objection, Your Honor;
2 foundation.

3 MR. ELROD: Your Honor, I think that's
4 already in evidence. Somebody -- it may have been
5 Gordon Johnson -- it was the cross-examination of
6 somebody that -- Taylor, Dr. Taylor.

7 THE COURT: There was talk about that.

8 MR. ELROD: All right.

9 THE COURT: Overruled. Go ahead.

10 A. Yeah. I believe there is current estimates
11 of a 15- to 25-year lifetime for the available
12 phosphorus.

13 Q. (BY MR. ELROD) Now, what if I didn't want
14 any phosphorus and only wanted to apply an equivalent
15 amount of 60 pounds of nitrogen using chemical
16 fertilizer?

17 A. Well, you could certainly purchase just the
18 Urea and apply it.

19 Q. So if I just bought Urea, what would the
20 equivalent amount, including transportation and
21 spreading costs, be?

22 A. Well, at the prices that we had when we did
23 the report at \$800 a ton, for 920 pounds of nitrogen
24 in that ton, the cost would be close to 90 cents a
25 pound for that Urea. And if you had to put on 130.43

1 pounds in order to get -- of substance in order to get
2 that, you could see that that would be a fairly large
3 expense.

4 Q. You're still -- are you still above the cost
5 of the nitrogen content of chicken litter?

6 A. That's correct. I think we calculated in our
7 report that to purchase it and to spread it, that cost
8 would be \$55.17 for just the nitrogen.

9 Q. For just the nitrogen?

10 A. Correct.

11 Q. Does the price that one has to pay for
12 chicken litter in order to land-apply it, if you don't
13 already own it, does it also rise and fall
14 historically with the cost of chemical fertilizers?

15 A. Yes, it would. It's a substitute for
16 chemical fertilizers. As the price of chemical
17 fertilizers rise, certainly the demand for poultry
18 litter would increase, and thus the price of poultry
19 litter would increase.

20 Q. So to wrap up this part of your testimony,
21 if --

22 MR. ELROD: April, if you'd put 372 up,
23 please.

24 Q. (BY MR. ELROD) Okay. These bar charts,
25 working from left to right, if you'd explain what they

1 display.

2 A. Again, as you said, this is a summary of what
3 we've just been through. If I look at 60 pounds of
4 nitrogen and 60 pounds of phosphorus, if I owned the
5 litter, I'm calling the cost \$18.28. If I have to
6 purchase the litter, the cost of that would be \$30.28.
7 And if I have to go and get chemical fertilizer and
8 the cost to apply it, the cost of that same chemical
9 mix would be \$113.86.

10 Q. All right, Dr. Dicks. Let's return to 360,
11 please, the nutrient value flow in the IRW, and let's
12 kind of get down in the weeds of this thing a little
13 bit.

14 You've already testified that you
15 calculated -- the boxes in the right-hand corner are
16 the forage and the hay necessary to maintain the
17 cattle in the IRW at its current levels?

18 A. That's correct.

19 Q. So you have shown in this chart your opinion
20 that's in your report, that the nutrients to produce
21 forage would require 63.1 pounds of nitrogen per acre
22 and 30.2 pounds of phosphorus per acre; is that
23 correct?

24 A. That's correct.

25 Q. And for hay, it would be 45.8 pounds of

1 nitrogen per acre and 45.7 pounds of phosphorus per
2 acre?

3 A. That's correct.

4 Q. Now, how do you -- why is there a difference
5 between the amount required to produce forage and the
6 amount required to produce hay?

7 A. Well, there's two reasons that are given
8 here. First of all, in the -- in the pasture versus
9 the hay, we have 2.26 tons of pasture forage per acre,
10 where we only have 1.92 tons per acre of hay.

11 And secondly, when you produce forage, the
12 cattle will consume that and some of those nutrients
13 are returned to the pasture. For the hay meadow, for
14 every ton of hay that you produce, according to the
15 literature, 13.7 pounds of phosphorus is removed per
16 ton of forage. So if you're producing 1.92 tons of
17 hay, you're going to remove roughly 26 to 27 pounds of
18 phosphorus per hayfield per acre?

19 Q. Now, forage would be grazing land?

20 A. Correct.

21 Q. And hay would be hay meadows?

22 A. That's correct.

23 Q. And how did you take the recycling assumption
24 of the State of Oklahoma for cattle into consideration
25 when you calculated the required forage amounts? That

1 was not a very good question. Did you understand
2 it?

3 A. I think I know what you're asking. But --

4 Q. All right.

5 A. So I guess what you're asking is, we've said
6 that the pasture's grazed, some of that's returned,
7 some of that phosphorus is picked up by the animals
8 and returned to the pasture.

9 First of all, when a cow consumes the forage,
10 10 percent of that phosphorus -- 10 percent of the
11 nutrients in that forage is being deposited in the
12 animal's body. Then that animal moves around
13 typically -- Billy Clay testified to the fact -- and
14 we're using that number and I think it's probably a
15 very conservative number -- that 40 percent of the
16 manure is excreted or deposited in loafing areas.
17 Those areas are not in the farm field.

18 And so that litter -- sorry -- that manure
19 has been moved from the farm field to another area,
20 what we call another area, some part of the watershed
21 that is not a productive field. In fact, some parts
22 of that pasture will be -- will be deposited directly
23 in the streams and so those stream areas also are
24 those areas.

25 We do know that -- and I think Billy Clay

1 testified to this -- I think most farmers know that,
2 particularly in the summertime, cattle tend to stand
3 in the water and when they're in the water they
4 defecate and urinate. They also tend to defecate and
5 urinate when they get up from loafing. And so those
6 are the areas that are deposited.

7 We used all of those pieces of information to
8 determine how much of the phosphorus, how much of the
9 nutrients that has been captured by the forage has
10 been returned to the land in those pastures.

11 Q. Have you seen that behavior with your own
12 eyes?

13 A. Yes.

14 Q. So what amount of phosphorus did you remove
15 from the actual forage areas in making your
16 calculations? Ten percent of the body weight;
17 right?

18 A. Ten percent of body weight.

19 Q. And what percentage --

20 A. And I think 40 percent of redeposition to
21 other areas.

22 Q. So did you leave 50 percent of the cattle
23 forage phosphorus back in the fields?

24 A. I think the estimate was less than 50
25 percent.

1 Q. All right, sir. Now, same question for hay
2 meadows.

3 What assumptions did you make in your
4 calculations in terms of phosphorus movements in hay
5 meadows and cattle impact on hay meadows?

6 A. Again, in the hay meadow, you have a constant
7 removal of material from the field, off of the field,
8 and away from the field so those nutrients are no
9 longer available in that hay meadow.

10 Farmers typically prize those hay meadows as
11 being places that they minimize the amount of
12 disturbance on them because when you -- when you're
13 out there running those tractors, nothing's worse than
14 to be going six or seven acres fast and hit a hole or
15 hit some part of that. So those hay meadows
16 are -- try to be kept as hay meadows.

17 Now, that's not to say that cattle sometimes
18 don't get on them, but it's typically that you will
19 not feed hay back in a hay meadow. And those of you
20 that have seen a round bale sitting out in the middle
21 of a field, especially after it's rained, will be
22 immediately able to identify why that is the case
23 because they'll leave a heck of a mess there.

24 So, again, in that hay field, you're
25 producing roughly two tons of hay. That's going to

1 be, you know, again 13.7 pounds of phosphorus per ton,
2 and so that's going to be roughly 27 and a half pounds
3 of phosphorus that's removed.

4 And then in order to produce that to have
5 that kind of a yield, you're going to have to make
6 sure that that field has got 65 STP in it. And so if
7 it doesn't, you'll have to add enough phosphorus to
8 get it up to that 65.

9 One thing that's important about that 65
10 number is, remember that if you have a 65 STP on that
11 field before you begin to cut that hay, after you've
12 cut that first ton of hay, you've pulled 13.7 pounds
13 of phosphorus off. So it's no longer at STP 65, it is
14 now less than STP 65. If you get below 45, now you're
15 not getting the nitrogen response that you should have
16 gotten by having the proper STP.

17 Q. Dr. Dicks, the exercise that we're going
18 through right now is to make your average STP
19 calculation in the watershed; is that true, sir?

20 A. That is correct.

21 Q. Why was it necessary that you go through this
22 exercise?

23 A. Well --

24 Q. We got a lot of numbers in this case.

25 A. Right. In order for me to determine the

1 value of phosphorus that would be needed in the
2 watershed -- and, of course, I had to determine the
3 value because in order for me to determine what the
4 impact would be on farmers of taking the poultry
5 litter out, I have to know what the value of that
6 poultry litter would be to them in the watershed. And
7 so I had to come up with some value that would be a
8 statistical approximation for what the average value
9 of STP would be in the watershed.

10 Q. Now, you just used a word I'd like for us to
11 focus on for a second, statistical approximation.

12 A. That's correct.

13 Q. Do you have to be a soil scientist to do that
14 exercise?

15 A. No, sir.

16 Q. What data did you -- strike that.

17 MR. ELROD: Could you go ahead and put
18 up that Arkansas-Oklahoma -- or Benton County,
19 Arkansas, and Washington County, Arkansas?

20 Q. (BY MR. ELROD) This is Demo 351 from
21 Dr. Rausser's testimony, for instance. It shows
22 distribution of Benton and Washington Counties' 2005
23 and 2007 STP values; correct?

24 A. That's correct.

25 Q. Now, there's already been testimony about

1 this, and I don't want to dwell on it, but will you
2 tell the court the number of acres that are
3 represented by the totality of samples that are in
4 this demonstrative?

5 A. Well, I can't tell the number of acres
6 because we don't know that.

7 Q. Well, for Benton and Washington Counties do
8 you?

9 A. We have a different set of data, the PFO
10 data, that, has so many fields that have been sampled
11 and that data had 38,000 acres. But this particular
12 data set --

13 Q. Wait a minute. Let's dwell on this for a
14 second.

15 A. There's three data sets.

16 Q. All right. But the PFO data set has 38,000
17 acres in Arkansas; is that true?

18 A. In Benton and Washington County, correct, in
19 IRW.

20 Q. And out of a total of how many pasture acres
21 in Benton and Washington Counties?

22 A. Excuse me? How many --

23 Q. Out of a total of how many pasture acres in
24 Benton and Washington Counties?

25 A. I believe that the estimate was somewhere

1 around 400 -- 400,000 acres of pastureland, cropland,
2 and --

3 Q. So is it your testimony then -- let me -- I
4 won't tell you what your testimony is. Let me ask you
5 a question.

6 A. This would be --

7 Q. What then would be the percentage of sampled
8 acres giving us STP values in the Gordon Johnson
9 testimony, for instance, compared to the total number
10 of acres available to be sampled in Benton and
11 Washington Counties that have no data?

12 A. Right. In that particular data set, we're
13 talking about --

14 MR. GARREN: Your Honor, I apologize,
15 but I don't think a proper foundation has yet been
16 laid about what he would have done in order to try and
17 ascertain available acres, what that number is. We're
18 just jumping to an assumption here.

19 THE COURT: Overruled. It's pretty
20 clear that 38,000 out of 400,000 is about one-tenth, I
21 would think; right?

22 THE WITNESS: Correct.

23 THE COURT: Let's move on.

24 MR. GARREN: I believe the question was,
25 what was the acreage in Benton and Washington

1 Counties, and I think his testimony was 400,000
2 acres.

3 THE COURT: Correct.

4 MR. GARREN: I believe that's IRW
5 acreage. Now, I don't know whether we're on the same
6 page --

7 THE COURT: You can cross-examine.

8 Q. (BY MR. ELROD) Now, Doctor, the other two
9 data sets that are in the record, do they have any
10 acreage of the sampled areas attached to them or
11 described to them at all?

12 A. No, they don't. In fact, this is the data
13 set -- one of the two data sets that you're talking
14 about that we have in front of us that has 6,558
15 observations, which covers a period of 2005 to 2007.

16 One of the problems with the data set is you
17 don't know whether those observations represent 6,558
18 individual observations on fields or whether they
19 represent the same field sampled three times in
20 each of the -- one time in each of the years.

21 Q. Okay.

22 A. Again, if you were to say how many fields are
23 there in the watershed, our estimate, based on Farm
24 Service Agency common land unit data, would suggest
25 that there's somewhere between thirty-five and

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1 forty-five thousand fields in that watershed. So this
2 being somewhere in the neighborhood of perhaps 2500 to
3 6,000 fields would be a small sample --

4 Q. Okay.

5 A. -- of those -- of all those fields.

6 Q. All right. So your calculation then is
7 deemed -- is necessary in order to overcome the
8 paucity of data?

9 MR. GARREN: Leading, Your Honor.

10 A. That's correct.

11 THE COURT: Sustained.

12 MR. ELROD: That was leading.

13 Q. (BY MR. ELROD) We can do it shirts and
14 skins, if you want to.

15 MR. GARREN: Outside?

16 THE COURT: I'll sell tickets.

17 MR. ELROD: I've been involved in cases,
18 Judge, where we called our own fouls but this is not
19 one of those.

20 Q. (BY MR. ELROD) All right, Mike. Let's go
21 back.

22 I don't want to get too deep into it, but was
23 it -- was it necessary to reach your STP calculations
24 spread evenly over the entire watershed of pastureland
25 available that you calculate the amount of chicken

1 litter produced from '74 to 2007 in the watershed?

2 A. It was, and that's correct.

3 Q. Right. And in your calculations, did you
4 assume that all that chicken litter was land-applied
5 inside the IRW?

6 A. Yes, I did.

7 Q. And did you assume it was spread evenly all
8 across the pastureland in the IRW?

9 A. Yes.

10 Q. And what was the purpose of that calculation
11 and those assumptions?

12 A. Again, we needed to -- we assumed virtually
13 that every acre in the IRW would be the same acre,
14 that would have the same amount of application to it,
15 and the same amount of use on it for purposes of that
16 statistical approximation.

17 Q. And can you tell the judge how you calculated
18 the amount of total chicken litter produced in the
19 watershed and assumedly land-applied in the watershed
20 from '74 to 2007?

21 A. Sure.

22 Q. What did you start with?

23 A. We took -- we started with the 2007 amount of
24 poultry litter of 295,114 tons, and we then used the
25 total amount of birds in inventory from census of 51

1 million birds. That gave us a pounds of poultry
2 litter per bird.

3 We then determined using census and NASS data
4 the total amount of birds that were available in the
5 watershed from 2007 back to 1974, which then gave us
6 an approximation of about 8 million tons of litter
7 that was available in the watershed --

8 Q. Eight million tons?

9 A. Yes.

10 Q. Okay. Sorry.

11 A. -- that was available in the watershed
12 between the period 1974 and 2007. That would be the
13 supply of nutrients.

14 Q. All right. And you applied 60 and 60 to that
15 8 million tons?

16 A. Correct.

17 Q. And you spread that resulting phosphorus and
18 nitrogen evenly across all pastureland in the
19 watershed?

20 A. Correct.

21 Q. All right. Now, what did you start out with
22 in '74 as an STP level?

23 A. Well, in order to pick a starting point --
24 and we didn't just randomly select 1974 -- we did, you
25 know, a small calculation based on what we've already

1 told you about, the supply and demand, the use -- the
2 use and application. We determined how much litter
3 was available in 1974, how much demand of that
4 nutrient would be there, and it turns out in 1974
5 you'd have needed about 100,000 pounds more of
6 phosphorus to meet the requirements for the forage in
7 the watershed than was supplied by the -- by the
8 litter. So there was no need to go further back
9 because that had no impact at that time previous on
10 the STP level.

11 Q. All right. Now, then in '74, what was your
12 starting point for STP in the watershed?

13 A. Twenty.

14 Q. And where did you get twenty?

15 A. That came from -- I think Dr. Engel was the
16 one that provided that.

17 Q. And that was his assessment of STP in virgin
18 Nickel Reserve property?

19 A. That's correct.

20 Q. So then in running your spreadsheets from '74
21 to 2007, using the methodology that you've just
22 described, what was your resulting STP -- average STP
23 number in the watershed for all pastureland available?

24 A. 45.5.

25 Q. All right. So does that number of 45.5 feed

1 right back into the necessity for using chicken litter
2 today to obtain phosphorus in the watershed?

3 A. That's correct.

4 Q. Now, in reality, Dr. Dicks, are some fields
5 much greater than 45.5?

6 A. Absolutely. We've seen from the data that's
7 from the defendants -- sorry -- from the plaintiffs
8 from Gordon Johnson that that data indicates there's
9 fields out there that have a higher STP than 45.5.

10 Q. All right. But for your purpose, you're
11 spreading it across the entire watershed; correct?

12 A. That's correct.

13 Q. Why is that legitimate?

14 A. Well, there's also fields -- obviously, if
15 given what I've told you about the amount of inflow of
16 nutrients and the amount of outflow of nutrients, if
17 there's fields that are greater -- that we know that
18 have an STP greater of 45.5, there's obviously fields
19 there that are less than 45.5.

20 I think even Dr. Johnson pointed in his
21 data -- I think his estimate for Oklahoma was that the
22 average STP was 55.

23 Q. In the IRW?

24 A. In the IRW.

25 Q. All right.

1 A. And that was on the select fields.

2 Q. Do you dispute the high STP numbers that
3 we've seen in some of the evidence in this case as an
4 example of what we're looking at on the screen right
5 now?

6 A. Do I dispute that they exist --

7 Q. Yes.

8 A. -- that the data showed that? No.

9 Q. Okay. In your view, is there a -- is there a
10 sample -- well, Gordon Rausser testified about that.
11 Is that biased?

12 MR. GARREN: Objection to form. Is
13 what?

14 Q. (BY MR. ELROD) The demonstrative on the
15 screen, is that biased?

16 THE COURT: Overruled.

17 A. Yes, I believe this data would be considered
18 biased.

19 Q. (BY MR. ELROD) Why?

20 A. Well, for one, the data is a sample that is
21 highly skewed to the people that are required to have
22 Nutrient Management Plans. So only the people that
23 are likely to have an STP that's high are the ones
24 that are providing the soil samples. The ones that
25 are not above 65 that are not -- have not and will not

1 or did not apply poultry manure have not turned in any
2 soil samples.

3 Q. Okay.

4 A. And, again -- just, again, this is a small
5 sample compared to the total number of acres and the
6 total number of fields that are in that watershed.

7 Q. Is your 8 million tons of litter produced a
8 conservative number?

9 A. Very conservative.

10 Q. What do you mean by that?

11 A. Again, this was a statistical approximation
12 so we're going to try to keep our estimate
13 conservative. Several things changed from 1974 to
14 2007 that we didn't include going backwards.

15 One of those would be that in 2007, we had a
16 six-pound chicken; in 1974, we might have had a four-
17 to four-and-a-half-pound chicken which produced a lot
18 less manure.

19 We also looked at the amount of sales per
20 inventory. During 2007, that sales to inventory ratio
21 would be about six. Going back, it was likely to be
22 four, four and a half. So those things would have
23 meant that the total amount of litter available would
24 have been smaller than we estimated, but we felt
25 comfortable with that estimate being that that would

1 give us the most conservative approach.

2 Q. Did you also assume, in order to be
3 conservative, that all of the nutrients contained in
4 the IRW came from chicken litter, not from other
5 sources?

6 A. That's correct.

7 Q. All right.

8 A. And one other thing, John. We didn't -- you
9 know, we did not have any loss of nutrients. We know
10 that the cattle are leaving the watershed to be -- to
11 be eaten, to be consumed, to be harvested, and
12 they -- they have phosphorus in them that's come from
13 this watershed, that's come from those farm fields,
14 and we didn't add that into the estimate.

15 Q. You just left it there?

16 A. We just left it there.

17 Q. And the higher the animal manure, the chicken
18 litter number, in the watershed, the higher the STP
19 would be raised, and therefore, by having a higher
20 number, you're being biased in favor of the State of
21 Oklahoma?

22 A. That's correct.

23 Q. All right. And you used the number 65. Is
24 that also deemed conservative?

25 A. Well, that's the number, you know, that we've

1 been given to us that -- that's the number that seems
2 to be the one everybody wants to hang on. Although,
3 you know, the number I could have used would have been
4 the state's 300 STP, which is what's the allowable
5 level. Or I could have used a STP of 120, which is
6 the level of STP you'd have to have to have a uniform
7 level of 65 pounds of phosphorus per acre.

8 Q. And if you'd have used those numbers, would
9 there be even more pastureland or less pastureland
10 available in the IRW to receive phosphorus?

11 A. Well, there would have been -- the way we've
12 done it, there would be the same amount of land. It
13 just would require a lot more phosphorus for sure.

14 Q. You're correct. I'm sorry.

15 All right, sir. So after making all those
16 calculations --

17 MR. ELROD: If we could go back to 360,
18 please, April.

19 Q. (BY MR. ELROD) Your ultimate conclusions in
20 regard to nutrients to provide forage and hay
21 sufficient to feed the animals in the watershed are on
22 this exhibit, Demo 360; correct?

23 A. Correct.

24 Q. All right. Now, how does this feed into your
25 economic impact on the watershed as a whole in the

1 agricultural community?

2 A. So, again, what we've done is, this shows
3 that we have 171,630 tons of litter that's required
4 for the forage, so that's the nutrients that we'd have
5 to substitute chemical fertilizer for, and 114,167
6 tons of litter for the hay production. Again, those
7 are chemicals that we'd have to substitute through
8 chemical fertilizer if we were to get rid of the
9 litter.

10 So the value of those things then is a loss
11 value within the watershed, a loss income that then
12 would impact the economy of the watershed.

13 MR. GARREN: Your Honor, we'd object on
14 these ultimate conclusions of the impact. We'd make
15 our record with regard to the argument previously
16 made, and that is, the balance in harms in this case
17 is inappropriate for several reasons that have been
18 previously cited in our briefs. But essentially
19 because the state is a sovereign and that activity
20 complained of may endanger public health, that balance
21 of harms is not appropriate.

22 Likewise, that even if the purported harms to
23 third persons, that the balance of law is clear that
24 third persons -- potential financial damages generally
25 do not outweigh the potential harm to the environment.

1 THE COURT: All right.

2 MR. ELROD: I think you've already ruled
3 on that, Your Honor.

4 THE COURT: I have. The objection is
5 overruled. This being a matter in equity, we'll take
6 those into consideration to the extent that they're
7 appropriate.

8 Assuming that the amount of production is
9 354,000 tons a year, your 286,000 tons, which you say
10 are necessary, if spread evenly across the acreage,
11 amounts to, if my arithmetic is correct, about 81
12 percent; correct?

13 THE WITNESS: That would be correct.

14 THE COURT: So that would assume, even
15 under your model, that some 19 percent needs to be
16 transported out of the watershed; correct?

17 THE WITNESS: Yes.

18 THE COURT: All right. But who's going
19 to be the czar to spread this out evenly over the
20 watershed?

21 THE WITNESS: Well, that's a good
22 question.

23 THE COURT: I don't know that I want to
24 be the chicken litter czar.

25 THE WITNESS: I think that you've -- I

1 mean, I think the czar already exists. The Natural
2 Resources Conservation Service requires nutrient
3 management plans. Those nutrient management plans
4 are, in fact, the czar. They're the ones that mandate
5 how much litter can be applied on that land, and thus
6 are determining the spatial allocation of that litter.

7 THE COURT: And yet, I went over a
8 deposition last night where the head of the Department
9 of Agriculture admits he doesn't have enough people to
10 oversee that program.

11 MR. ELROD: Judge, if you're going to
12 try my case for me, don't lose it.

13 THE WITNESS: Are you asking me for an
14 alternative or a solution?

15 THE COURT: Well, sure. That's what
16 we're all looking for.

17 THE WITNESS: Well, that's good. You
18 know, since I deal in policy quite a bit, this is
19 obviously an equity issue; correct?

20 THE COURT: You worked with -- was Block
21 the Secretary of Agriculture? Who was the Secretary
22 of Agriculture when you were there.

23 THE WITNESS: I think Dick Lane was the
24 secretary while I was at USDA.

25 It is an equity question and so the question

1 comes down to if it's a substantial enough problem,
2 that the costs are greater than the -- the costs of
3 having that litter in the watershed is greater than
4 the cost of limiting it. Then presumably those
5 benefits will pay for the people to come and manage
6 it, but if it's not, they won't.

7 So I guess what we're saying here is, if the
8 state is not doing its job in terms of managing the
9 problem, then it must not be a big enough problem to
10 the state.

11 THE COURT: Well, but we have the
12 additional complication of another state which
13 doesn't, according to the plaintiff, suffer the same
14 impacts as the downstream state. Your policy analysis
15 take that into consideration?

16 THE WITNESS: At a federal level, it
17 would, yes.

18 THE COURT: Well, of course the focus of
19 the EPA has been point source, hasn't it?

20 THE WITNESS: Well, I think I'm not
21 sure -- I'm not sure it would be correct to say its
22 focus has only been --

23 THE COURT: No, no, no, no. I say the
24 focus has been point source over nonpoint source;
25 correct?

1 THE WITNESS: Again, you know, I think
2 that's a typical strategy for EPA. Obviously, the
3 most relevant form of pollution is the point source,
4 it's the largest. But then they have always -- every
5 problem we've had in the United States about
6 pollution, whether it's air, water, whatever, since
7 1965 since we began down this road, was to first
8 identify the point source, clean up the point source,
9 then move to the nonpoint source.

10 THE COURT: Can't do it all at once?

11 THE WITNESS: You cannot do it at all
12 once.

13 THE COURT: Go ahead.

14 MR. ELROD: Thank you, Judge.

15 Q. (BY MR. ELROD) Dr. Dicks, then did you look
16 at the macroeconomic impacts on the agriculture
17 community of the watershed under two polar scenarios?

18 A. Yes.

19 Q. And one polar scenario is what?

20 A. Well, one scenario would be that the farmers
21 faced with the elimination of poultry litter and the
22 elimination of these nutrients, which would mean
23 they'd have an inability to produce enough forage to
24 feed their cattle, would then go and purchase chemical
25 fertilizers.

1 Q. One hundred percent substitution?

2 A. One hundred percent substitution so that they
3 could continue to produce the same amount of forage to
4 have the same number of cattle.

5 Q. The other polar scenario is what?

6 A. That they would realize that the cost of
7 chemical fertilizer was too great and they would
8 simply downsize their herds.

9 Q. Okay.

10 MR. ELROD: Could you put up, please,
11 370, April?

12 MR. GARREN: 370?

13 MR. ELROD: 370. Thank you, ma'am.

14 Q. (BY MR. ELROD) Now, is this a graphic of
15 what you've just testified to?

16 A. That's correct. We have two scenarios: one
17 hundred percent replacement of the nutrients by
18 chemical fertilizer, and then zero replacement where
19 no chemical fertilizer is used to replace the
20 nutrients lost in the poultry litter.

21 Q. All right. And you used the IMPLAN model?

22 A. We -- to determine the impacts, yes, we used
23 the IMPLAN model.

24 Q. Are either of these scenarios, based on your
25 years of experiences as an agricultural economist and

1 policy advisor for the federal government, USDA
2 likely, either polar?

3 A. No.

4 Q. What is your view that would be the most
5 likely scenario?

6 A. Well, given that we have producers in the
7 watershed that are both high-cost and low-cost
8 producers, immediately some people will cut back on
9 their herds and some people won't. Over time, I think
10 you'd start with, of course, most people believing
11 that perhaps they could get away with the chemical
12 substitution. When they tried it, they'll find out
13 that their returns drop and they'll move away from
14 that.

15 So I think what we've done is try to set up
16 two scenarios here, where one would be -- the hundred
17 percent replacement would be the more typical
18 immediate response, but over time we'll be moving
19 towards all the producers towards the zero
20 replacement.

21 MR. ELROD: Now if you'd put up 371,
22 please, April.

23 Q. (BY MR. ELROD) Does this display the polar
24 extreme results of your IMPLAN analysis?

25 A. Yes, it does.

1 Q. All right. The top one is what would happen
2 upon one hundred percent replacement of poultry litter
3 with chemical fertilizer; is that true?

4 A. That's correct.

5 Q. All right. Moving from left to right, would
6 you describe to the court what direct costs are at \$25
7 million negative?

8 A. Well, those direct costs came from our use of
9 an increase in chemical fertilizer; our reduction in
10 revenues, profits, to the farmers; our increase in the
11 use of cubes, cake, protein feed supplement; and the
12 increase in operating interest that would be paid
13 because of the increased cost of the chemical
14 fertilizer.

15 Q. And indirect costs are a positive 600,000.
16 What are indirect costs in the IMPLAN model and why is
17 it positive here?

18 A. Well, the indirect costs are the goods and
19 services that are used that are -- that are -- how do
20 you say it? -- spun-off or created by trying to
21 produce the things that went into the direct impacts.

22 It's positive here basically because you've
23 now -- you're moving a lot of material, in terms of
24 chemical fertilizer, and the volume of that material
25 and the economic activity of that is greater than the

1 economic activity lost from the movement of poultry
2 litter.

3 Q. And induced costs are a negative 6 million?

4 A. That's correct.

5 Q. What are induced costs?

6 A. In both the direct and indirect impacts, you
7 have people that are making a living, that are gaining
8 an income, and they use that income to purchase a
9 market basket of goods, whether it's car insurance or
10 their groceries, and that then is the economic
11 activities that is involved in the induced impact.

12 Q. So does that negative \$6 million induced
13 represent the \$25 million rippling through the
14 economy?

15 A. That's correct. It's a net of both, John.

16 Q. All right, sir. Now, your total for 2006
17 dollars is \$31 million?

18 A. That's correct.

19 Q. And then you extrapolate it to 2008 dollars;
20 is that true?

21 A. Right. We use a deflator to get back to the
22 2008 value, which would be a minus 34 million.

23 Q. And the IMPLAN model, does it tell you that
24 there are 501 jobs lost under that scenario?

25 A. That's correct.

1 Q. And just briefly, tell the court how it comes
2 to that conclusion.

3 A. How it comes to the jobs lost conclusion?

4 Q. Yeah. How does the interworkings of the
5 model spit out that conclusion?

6 A. So every industry just -- labor is an input
7 to every industry. So every time an industry loses so
8 much economic activity, so much output, it loses a
9 proportionate number of jobs.

10 Q. All right. Now, the other polar scenario is
11 that you do not replace lost nutrients from poultry
12 litter with chemical fertilizer at all; correct?

13 A. That's correct.

14 Q. So there would be no nutrients available to
15 be annually applied in the watershed at all under this
16 scenario?

17 A. That's correct.

18 Q. All right, sir.

19 A. Well, sorry, John. No, that's not exactly
20 correct. There are already -- in both circumstances,
21 there are chemicals that are being applied, even in
22 our -- even in our -- the amount of litter that's
23 being applied does not provide enough nitrogen in the
24 watershed. So you're still providing chemical
25 nitrogen on top of the litter.

1 Q. Okay.

2 A. So all we've done is remove the litter.
3 There's still chemical nitrogen at that rate being
4 applied, no more.

5 Q. All right, sir. I'm sorry. Correct.

6 So under that scenario then, the direct cost
7 is what?

8 A. The direct cost is simply the loss in cattle
9 sales, loss of \$43 million.

10 Q. And because of lower stocking rates?

11 A. Correct.

12 Q. Because you don't have enough to feed them?

13 A. That's correct.

14 Q. And the indirect costs of \$31 million,
15 describe what that's all about.

16 A. Well, everybody that is involved in providing
17 inputs to raise those things, whether it's
18 veterinarian services or the feed store, is going to
19 have less sales because of the loss of those -- those
20 cattle.

21 Q. And induced costs here are a negative 6
22 million again?

23 A. That's correct.

24 Q. And that's, again, the ripple effect of --

25 A. That's the ripple effect.

10500

1 Q. -- those numbers going through the economy?

2 And your total 2008 dollars lost under that
3 scenario is 88 million?

4 A. That's correct.

5 Q. Jobs lost 1192?

6 A. Yes.

7 Q. All right, sir.

8 MR. ELROD: Your Honor, I'm going to
9 move the introduction of two exhibits. First one is
10 6356, which is --

11 THE COURT: Any objection to 6356?

12 MR. GARREN: No, Your Honor.

13 THE COURT: 6356 is admitted.

14 MR. ELROD: And move the introduction of
15 6357.

16 THE COURT: Any objection?

17 MR. GARREN: No objection.

18 THE COURT: 6357 is admitted.

19 THE COURT: And I do have one follow-up
20 in regard to His Honor's 20 percent removal of litter.

21 THE COURT: Yes, sir.

22 Q. (BY MR. ELROD) The numbers you have used,
23 are they before or after removal of litter by BMP's,
24 Inc. of 70,000 tons?

25 A. They're before removal of it. We do not

1 include that as part of our estimate.

2 Q. All right, sir. And that would be more than
3 20 percent of 295,000?

4 A. That's correct.

5 MR. ELROD: Pass the witness, Your
6 Honor. Thank you, Dr. Dicks.

7 THE COURT: Cross-examination.

8 MR. GARREN: Give me a moment, Judge, to
9 set up, if you would.

10 THE COURT: Yes, sir. Well, this might
11 be an appropriate time. We'll give you the moment
12 during the break.

13 *(Short break)*

14 THE COURT: Cross-examination,
15 Mr. Garren.

16 MR. GARREN: Thank you, Your Honor.

17 **CROSS-EXAMINATION**

18 **BY MR. GARREN:**

19 Q. Dr. Dicks, before we get started here, I want
20 to try and clear up a couple facts.

21 The number of birds that you said you used
22 for your calculation was 50 million birds; correct?

23 A. Fifty-one, yes.

24 Q. Fifty-one million. And that is just an
25 inventory number; correct?

1 A. That's a January 1st inventory number,
2 correct.

3 Q. And, in fact, we have more than that sitting
4 in the houses throughout the year; would you agree?

5 A. I'd agree.

6 Q. And for a typical broiler operation, you're
7 seeing a flock turn of about five to six times a year;
8 correct?

9 A. Correct.

10 Q. And would that impact your numbers if you put
11 in the total bird sales as opposed to an inventory
12 number?

13 A. No.

14 Q. Did you calculate your poultry based upon
15 bird numbers -- I mean, your poultry waste based upon
16 that bird number of 51 million?

17 A. Did I calculate the poultry waste number?

18 Q. Yes.

19 A. The tons of poultry litter?

20 Q. Yes, sir.

21 A. No.

22 Q. The number of acres that you said was used
23 for land application, I believe, you testified was
24 400,000. Is that the number of acres in the entire
25 watershed or is that just Arkansas?

1 A. I think that was the Arkansas.

2 Q. What is the total number of acres that you
3 used for your estimations that land would be -- or
4 poultry waste could be land-applied on?

5 A. 491,000, I believe, is the accurate number.

6 Q. And that is for the entire watershed;
7 correct?

8 A. That's for the entire watershed. That's the
9 total number of cropland, pasture, hay land, and
10 pasture acres, correct.

11 Q. I noticed in some of your spreadsheets the
12 number of 670,000 and 698,000 acres.

13 Was that a number that's actually used as
14 part of your calculations?

15 A. No, it was not. That was the five-county
16 area.

17 Q. All right. Do you consider yourself to be a
18 resource economist, Dr. Dicks?

19 A. Yes.

20 Q. And as a resource economist, would you agree
21 it's important to take into consideration the impacts
22 of agricultural practices and what they will do to
23 resources such as water quality?

24 A. Yes.

25 Q. You'd agree, and it is your opinion, that you

1 think more phosphorus can be added into this
2 watershed; correct?

3 A. I believe I stated that I feel my estimates
4 show that more phosphorus could be added to the farm
5 fields in the watershed, correct.

6 Q. And is that your opinion, that more
7 phosphorus then could and should be added to this
8 watershed?

9 A. Yes.

10 Q. All right. To what extent, in forming that
11 opinion, did you take into consideration that the IRW
12 is a nutrient-limited or surplus area?

13 A. That didn't come into my determination.

14 Q. Okay. You're aware that both states have
15 determined the IRW to be a nutrient-surplus or
16 nutrient-limited area; correct?

17 A. I agree, yes.

18 Q. Would you agree that your opinion goes only
19 to the economics and not the environmental impact of
20 adding more litter to the watershed?

21 A. Correct.

22 Q. And you would agree that your focus in making
23 that opinion is on a field STP as opposed to the
24 watershed as a whole?

25 A. Correct.

1 Q. You agree that it's -- that agricultural
2 nutrient transport in runoff is an environmental
3 concern, correct, in the IRW?

4 A. Yes. It could be.

5 Q. Do you think it is today?

6 A. For some people, certainly.

7 Q. And who are those people?

8 A. Well, I read about it. I've not measured it.
9 So I couldn't tell you that I know for sure it is.

10 Q. Okay. Is it your opinion then that the
11 economic value of the litter is a justification to
12 continue phosphorus loading in this watershed which
13 has been designated nutrient-surplus or limited?

14 A. I'm sorry. Can you repeat that?

15 Q. Yes. Is it -- are you saying that the
16 economic value of the litter is a justification for
17 continued phosphorus loading in a
18 nutrient-surplus-designated watershed, the IRW?

19 A. Yes.

20 Q. You agree you've not conducted any scientific
21 survey or investigation to determine where in the IRW
22 there may be fields, if any, which have tested less
23 than 65 STP; correct?

24 A. Correct.

25 Q. You have not conducted any scientifically

1 valid survey of landowners to determine if there are
2 any in the IRW that would accept land-applied poultry
3 waste and who are not already using it; true?

4 A. True.

5 Q. And that is a premise of one of your major
6 assumptions in your opinion, that it would be applied
7 uniformly throughout the watershed; correct?

8 A. That it could be, yes.

9 Q. All right. You or others have not
10 conducted -- let me put it this way.

11 You, or others for you, have not conducted
12 any scientific study or investigation to determine the
13 environmental impact from the additional phosphorus
14 you propose be added to this watershed?

15 A. No, we have not.

16 Q. You're not a soil scientist; correct?

17 A. Correct.

18 Q. You're not a hydrologist?

19 A. No.

20 Q. And you're not an agricultural engineer?

21 A. No.

22 Q. And you do not conduct or have not conducted
23 river or watershed modeling; correct?

24 A. That's not correct. I have.

25 Q. Okay. What have you conducted in that

1 regard?

2 A. I completed just recently a Fort Cobb
3 watershed study. Again, one of the roles of the
4 Economic Research Service, as far back as the '60s,
5 was watershed analysis.

6 Q. Okay. Well, I'm just asking what you've
7 done.

8 Have you done a watershed analysis in Fort
9 Cobb?

10 A. Yes.

11 Q. And did you apply a model to that analysis?

12 A. Yes.

13 Q. Is that the only model you've operated with
14 or used in a watershed?

15 A. That's the only one I can recall at the
16 moment, yes.

17 Q. Okay. And you've not conducted any model or
18 similar model in the IRW, have you?

19 A. No, I have not.

20 Q. Did you have an opportunity to review the
21 testimony of Dr. Dwayne Edwards in this case?

22 A. I don't recall that, no.

23 Q. Are you aware that he -- then you're not
24 aware that he's testified in this case that runoff
25 from rainfall events after manure application can

1 transport manure constituents, such as phosphorus, to
2 downstream waters; correct?

3 MR. HOPSON: Objection; beyond the scope
4 of this witness' direct.

5 MR. GARREN: It goes to the fundamental
6 assumptions he's used, Your Honor, in order to apply
7 the input/output model and to calculate his STP values
8 as to what impact or effects we might have.

9 MR. HOPSON: Testimony about runoff,
10 Your Honor, doesn't go into input/output models.

11 THE COURT: The objection's sustained.

12 Q. (BY MR. GARREN) Did you take into
13 consideration the potential of runoff occurring from
14 the additional phosphorus that you're proposing be
15 added to this nutrient-limited watershed?

16 MR. MCDANIEL: Excuse me, Your Honor. I
17 want to object. Mr. Garren has asked several
18 questions suggesting that Dr. Dicks is saying that we
19 need to put more poultry litter in this watershed. He
20 simply analyzed current production. I think that's
21 misleading.

22 THE COURT: Yeah. This area goes beyond
23 the scope. Dr. Dicks has not offered himself as an
24 expert with regard to runoff but -- so the objection's
25 sustained.

1 Q. (BY MR. GARREN) You do, however, recognize
2 the concern voiced by many in published literature of
3 what happens to land-applied poultry waste in the IRW;
4 is that correct?

5 MR. HOPSON: Objection; beyond the
6 scope.

7 THE COURT: Overruled.

8 A. Could you repeat it?

9 MR. GARREN: I'm going to ask the court
10 reporter to read it back to you so we get it right.

11 *(The record was read as requested)*

12 A. I know there's -- there's been public
13 periodical information on concerns for litter and its
14 contamination in the IRW. I don't know that I can
15 recall any published journal articles that state the
16 same.

17 Q. (BY MR. GARREN) You don't know Dr. Edwards;
18 correct?

19 A. No, I don't.

20 Q. So you haven't read any of his papers. Do
21 you know Dr. Chaubey?

22 A. Pardon me?

23 Q. Do you know a Dr. Indrajeet Chaubey who's
24 published on these areas?

25 A. I don't believe so.

1 Q. Do you know Dr. Brian Haggard who's published
2 on this area of the IRW?

3 A. I do not.

4 Q. Okay. Now, just so I'm clear, as part of
5 your work in this case, you've not conducted any soil
6 or water sampling in the IRW; true?

7 A. True.

8 Q. No one has conducted any soil or water
9 sampling for you to give your opinion in this case;
10 true?

11 A. That's correct.

12 Q. Now, you made a comment in your testimony and
13 I want to make sure I understand its context. You
14 talked about inputs and outputs relative to nutrients.

15 Are you talking about from a concept of a
16 mass balance concept or not?

17 A. I'm unclear of what you're referring to.

18 Q. Okay. Well, I just wrote down quickly that
19 you talked about input and output flows and I thought
20 you said "nutrients."

21 Was that part of your consideration in giving
22 an opinion?

23 A. I'm still not sure where you're going. I
24 mean, I'm not sure what you're asking me.

25 Q. I'm just trying to figure out -- let me ask

1 it this way then.

2 Did you, as part of your work, review any
3 mass balance studies in the IRW on nutrient mass
4 balance?

5 A. I don't believe so, no.

6 Q. Did you review any published materials that
7 show the levels of STP in the region of northwest
8 Arkansas that may have been published by like the USDA
9 or others?

10 A. I don't recall if it was STP. I did review
11 an Economic Research Service report that showed that
12 there was a nutrient surplus in the county -- in those
13 counties.

14 Q. You would agree, sir, as part of your charge
15 in doing your work in rendering your opinions in this
16 case to assess the economic effects on the local
17 economy of litter removed, you have ignored any
18 environmental effects of adding more P -- is that
19 correct? -- more phosphorus.

20 A. Yes.

21 Q. And you have not performed what's referred to
22 as a net-cost benefit analysis; correct?

23 A. I have not performed a benefit-cost analysis,
24 no, sir.

25 Q. You would agree that generally the poultry

1 litter generated in the IRW historically has stayed
2 within the IRW?

3 A. Yes.

4 Q. Based upon economics, do you agree it's
5 cheaper to control nutrient sources rather than
6 symptoms of nutrient enrichment in watersheds such as
7 the IRW?

8 A. Yes.

9 Q. What were the number of poultry houses -- or
10 let me ask you this.

11 Did the number of poultry houses weigh in any
12 way on the work that you performed in providing your
13 opinions today?

14 A. No, sir.

15 Q. Okay. Was the source of the bird numbers you
16 used -- what was that source?

17 A. For what purpose the bird numbers?

18 Q. The 51 million number, what was the source of
19 that number?

20 A. Census of Agriculture and National
21 Agricultural Statistics Service.

22 Q. Did you obtain that yourself or did you rely
23 on Billy Clay to get it?

24 A. I obtained that myself.

25 Q. Okay. Do you agree that almost all the feed

1 to support the poultry produced in the IRW is imported
2 to the IRW?

3 A. Yes.

4 Q. And was the importation of that feed into the
5 IRW included in the IMPLAN model when you ran it?

6 A. No.

7 Q. You agree that the importation of feed into
8 the watershed would and could represent flow of
9 dollars which is what the IMPLAN model measures;
10 correct?

11 A. Yes.

12 Q. Why did you not consider it?

13 A. Well, I didn't have to consider it. It's
14 included in the model.

15 Q. All right. Was it one of the choices of the
16 business sectors that you have an option to choose or
17 not to choose?

18 A. Well, there is a poultry sector in the model,
19 yes.

20 Q. All right. And that would include
21 importation outside the five-county region that you
22 used of feed to support the IRW production?

23 A. Yes.

24 Q. Even though your model was restricted to the
25 five-county region, Benton County, Washington County,

1 and three counties in Oklahoma; correct?

2 A. Yes.

3 Q. And so it will go out -- you're telling me
4 that the model would go out and grab those flow of
5 dollars from outside the economic region that you
6 used?

7 A. Oh, I see what you're saying. No, it would
8 not.

9 Q. Okay. In your review of information
10 necessary for your opinion, did you determine whether
11 there was an increased concentration of poultry in the
12 Arkansas side versus the Oklahoma side?

13 A. Say that again. Are you asking about --

14 Q. Maybe let me ask it this way.

15 Does it matter for your purposes of
16 calculating and making your assumptions that there are
17 more poultry produced in the Arkansas side of the IRW
18 than in the Oklahoma side?

19 A. No.

20 Q. Given that you said that generally waste is
21 only transported at best the furthest distance around
22 ten miles --

23 MR. ELROD: Your Honor, I object. That
24 misstates the evidence.

25 THE COURT: Rephrase, please.

1 Q. (BY MR. GARREN) Given your testimony that
2 ten miles is the farthest out that you believed an
3 owner of waste would travel to land-apply it --

4 MR. ELROD: Object again, Your Honor.
5 That misstates the evidence.

6 THE COURT: Overruled.

7 Q. (BY MR. GARREN) Let me ask you, sir: With
8 regard to the ten-mile radius that you opined to, tell
9 me again what you said it means.

10 A. It was just the average maximum distance we
11 used to come up with that calculation.

12 Q. And it's an average based upon what?

13 A. The size of the watershed and what we know in
14 the past. I mean, it's just an assumption.

15 Q. All right. That's my point. You only made
16 an assumption as to that radius; correct?

17 A. That's correct.

18 Q. Did you review Dr. Engel's work and his study
19 on the average distance that land --

20 A. No.

21 Q. -- or Dr. Fisher and Engel showed
22 land-applied poultry waste was transported from the
23 house?

24 A. No.

25 Q. Okay. In operating your IMPLAN model, did

1 you include as part of your results the effect, if
2 any, of tourism or recreation -- let me restate that.

3 With regard to removal of litter from the
4 IRW, did your model take into consideration any
5 effects it would have on tourism and recreation
6 dollars?

7 A. No, sir.

8 Q. Do you know what the estimated value in
9 annual dollars are in tourism and recreation in the
10 IRW?

11 A. I do not.

12 MR. GARREN: May I approach, Your Honor?

13 THE COURT: Yes, sir.

14 Q. (BY MR. GARREN) Dr. Dicks, have you had an
15 opportunity to see this USGS report before today?

16 A. I don't recall.

17 Q. I'd ask you to look at page 10 of this
18 document under the heading "Water and Local Economy."

19 *(Discussion held off the record)*

20 MR. GARREN: Let me identify the
21 document, Judge. I've not done that.

22 It's USGS document demonstrative for the
23 state of No. 360, and it is the summary of surface
24 water quality data from the Illinois River Basin in
25 northeast Oklahoma from 1970 to 2007.

1 Q. (BY MR. GARREN) And, Dr. Dicks, directing
2 your attention to page 10 under the heading "Water and
3 Local Economy," do you see that?

4 A. Yes.

5 MR. ELROD: Your Honor, I'm going to
6 object to the use of this document. Dr. Dicks said he
7 didn't take it into consideration, he doesn't think
8 he's ever seen it, and this whole line of questioning
9 was not something he even took into consideration in
10 the opinions he's offered.

11 MR. GARREN: And that's the whole point
12 of my offering it, Your Honor, is to show that he has
13 taken a very myopic view with regard to the effects of
14 litter being removed. I want to show what the
15 estimated annual revenues are from both tourism and
16 recreation as shown in this document.

17 MR. HOPSON: Your Honor, I have an
18 additional objection. The document is hearsay. The
19 witness has already said he did not take into account
20 recreational impacts so he can't be impeached with a
21 document showing that there may be recreational
22 impacts.

23 THE COURT: I think that's the point.
24 Sustained.

25 Go ahead.

1 MR. GARREN: The document is admitted,
2 Your Honor, with regard to its use. So certainly it
3 would be appropriate, I think, to ask him how that
4 might change the results that he has given in his
5 opinion if these other numbers were taken into
6 consideration.

7 THE COURT: I don't know that its
8 admission makes any difference with respect to its
9 impeachment value, if he can't be impeached, since he
10 denies he took into consideration recreational values.
11 Counsel.

12 MR. HOPSON: I agree, Your Honor. You
13 know, the hearsay objection -- I don't know why we say
14 this document is admitted into evidence since I've
15 been handed a document marked Demonstrative 360.
16 Whether it's in evidence or not, impeachment is
17 confronting the witness with something inconsistent
18 with his testimony.

19 He just said not three questions ago that he
20 does not take recreational impacts into account, and
21 the IMPLAN models showing how much they might be,
22 which frankly is not something this document does, is
23 not proper impeachment?

24 THE COURT: Right. You've already
25 impeached him by virtue of the fact that he only takes

1 into consideration agricultural interests, which is
2 part of the alleged problem here. We're just focusing
3 on ag interests.

4 Sustained.

5 Q. (BY MR. GARREN) Was it your choice,
6 Dr. Dicks, to limit the scope of the application of
7 the IMPLAN model to only the five-county region and
8 the effect of removing litter --

9 A. It was --

10 Q. -- as an economist?

11 A. It was the task that I was provided, yes.

12 Q. All right. And you were told then to limit
13 the applicability of the IMPLAN model to just those
14 subjects, correct, as part of your task?

15 A. I believe what I was instructed to do was to
16 determine the economic impact on the farmers and the
17 economy from removal of the poultry litter.

18 Q. And who instructed you to do that?

19 A. Well, the group of lawyers. I'm not sure
20 which one exactly.

21 Q. Okay. Now, you've talked about calculating
22 STP, and your calculations were to bring it up to a
23 level of 65; is that correct?

24 A. That's correct.

25 Q. Do you have an experience regarding the

1 agronomic needs of forage grasses in the IRW?

2 A. Specifically in the IRW?

3 Q. Yes, sir.

4 A. No.

5 Q. Okay. For Bermuda and fescue, do you know
6 what the agronomic need of those grasses are for
7 phosphorus?

8 A. In terms of their uptake or in terms of --

9 Q. Yes, sir.

10 A. -- their level for nitrogen consumption?

11 Q. In terms of the uptake of phosphorus.

12 A. Again, as I've said, according to literature,
13 it's 13.7 pounds of phosphorus per ton of -- per ton
14 of hay -- of forage.

15 Q. The agronomic critical level for fescue or
16 Bermuda grasses you understand to be 65 STP; is that
17 true?

18 A. Correct.

19 Q. Do you know or understand whether phosphorus
20 when continuously applied over time will build up in
21 the soils in the IRW?

22 A. Yes.

23 Q. And will it?

24 A. Yes.

25 Q. And was that taken into consideration in your

1 calculations?

2 A. I don't -- I think in our calculations we
3 didn't allow it to.

4 Q. And that is because you did what, removed
5 forage at a level consistent with what would allow a
6 continuous application of more litter?

7 A. Can you repeat that?

8 Q. Let me ask it this way.

9 What did you do to not allow the buildup in
10 your calculations?

11 A. Well, we limited the phosphorus that could be
12 applied to the STP of 65.

13 Q. And do you understand whether or not in
14 fields that are not hayed whether that STP level will
15 rise over time with that continuous application rate?

16 A. We only applied -- we only allowed -- in our
17 model, we only allowed enough phosphorus to be applied
18 to produce the forages that were required for the
19 cattle and attain an STP of 65. Beyond that, no more
20 was applied.

21 Q. Okay. And your assumption is that it would
22 be uniformly applied throughout the watershed, though;
23 correct?

24 A. Yes.

25 Q. And you've already testified that you know

1 and are aware that there are many fields that are
2 already above 65; correct?

3 A. That's correct.

4 Q. And so under your assumption, you're now
5 applying on fields in your model or in your
6 calculations that don't need it; correct?

7 A. Well, not necessarily, no.

8 Q. Well, if in actuality there are fields out
9 there that have more than 65 and you're uniformly
10 applying on all fields, aren't you applying on those
11 fields that are above 65?

12 A. Well, in a sense -- in a sense of reality,
13 yes. But this is a statistical approximation that we
14 determined an average, a statistical average, of 45.5,
15 meaning that if you took all the litter that was
16 available from 1974 to 2007 and applied it in the
17 watershed and that was the only source of nutrients
18 and you had the haying and cattle activities that you
19 had at that time, that the amount of demand would pull
20 out those nutrients and so you would reach across the
21 board 45.5.

22 Now, if I was to go back and say let's
23 calculate -- let's take all the information we have on
24 these high levels and try to add that back in, what
25 I'd find would be still an average of 45.5, but I'd

1 also find fields there that might have close to zero
2 phosphorus level.

3 Q. Well, you haven't done anything to determine
4 what -- and you've already said that -- you haven't
5 done anything to determine, by way of survey or
6 sampling, what the STP levels are in any field;
7 correct?

8 A. I don't think anybody has.

9 Q. Well, in fact, we have STP data that even
10 Gordon Johnson has placed into evidence in this case;
11 true?

12 A. For a small subset of fields.

13 Q. Well, at least we have a subset of fields;
14 correct?

15 A. Not of a sample that you could use to come up
16 with the calculation I did.

17 Q. But that's the only data that's available;
18 would you agree?

19 A. That's correct.

20 Q. All right. And so sometimes we're dealt the
21 cards, we've got to play them; right?

22 A. That's what I did.

23 Q. All right. But you didn't rely on that STP
24 data, you went out and constructed by assumption and
25 calculation an average STP evaluation; true?

1 A. Exactly. As Dr. Rausser pointed out, that
2 data is biased and it's not usable for that purpose.

3 Q. You would agree with me, sir, that there are
4 a lot of landowners in the IRW who do not want or
5 desire any poultry litter to be applied on their
6 lands; correct?

7 MR. HOPSON: Objection; calls for
8 speculation.

9 THE COURT: Asked if has an awareness.
10 Overruled.

11 A. I have no -- I have not seen a study and I
12 don't think anybody's done a study that would -- would
13 indicate that, no, sir.

14 Q. (BY MR. GARREN) Okay. So we must believe in
15 your assumption that everybody wants and will, in
16 fact, apply it as you have done in your calculation;
17 correct?

18 A. I never made that assumption in my
19 calculations, no, sir.

20 Q. But you did assume that all fields would be
21 uniformly applied?

22 A. Could be, yes.

23 Q. Okay. Could be.

24 A. I think that's a big difference in words,
25 isn't it?

1 Q. It's a conditional, isn't it? It's not
2 categorically that it would be; correct?

3 A. Could be.

4 Q. That's right. So it could be that there are
5 a lot of people who don't want it; correct?

6 A. Possible.

7 Q. And it's very possible that the STP data set
8 that we have represents only those who are using it
9 and are needing to take a soil test; correct?

10 A. That's correct.

11 Q. Sir, when you made the statement that roughly
12 10 percent of the phosphorus is removed in the
13 development of beef animal, you've not provided any
14 authority for that statement in your report, have you?

15 A. I believe so, yes. I believe it's --

16 Q. Can you tell me what the authority is?

17 A. Right offhand, I'd have to turn to appendix
18 A, but I believe it's documented in appendix A under
19 one of the OSU publications, yes.

20 Q. Now, in your opinion, Dr. Dicks, you state
21 that grazing cattle will return the nutrients to the
22 ground but not necessarily in the pasture in which
23 they took the grass and chewed it; correct?

24 A. That's correct.

25 Q. But you'd agree with me notwithstanding that,

1 they will still deposit the nutrients taken --
2 ingested by them into an area close to the pasture;
3 correct?

4 A. That's correct.

5 Q. And we're still within the IRW when those
6 nutrients are redeposited; correct?

7 A. That's correct.

8 Q. And those areas that have been referred to as
9 loafing areas, those are typically trampled and
10 compacted; correct?

11 A. Yes.

12 Q. Do you know whether or not that enhances the
13 potential for runoff in those areas?

14 MR. HOPSON: Objection; beyond the
15 scope.

16 THE COURT: Overruled. Go ahead.

17 A. It could, yes.

18 Q. (BY MR. GARREN) Does your calculations and
19 model take into effect the amount of phosphorus found
20 in the stream moving downstream to the lake?

21 MR. HOPSON: Objection, Your Honor. Now
22 we've got phosphorus in the stream which is clearly
23 beyond the scope of his economic testimony.

24 THE COURT: Sustained.

25 Q. (BY MR. GARREN) So the only loss of

1 phosphorus that you're testifying about is where
2 cattle move it from one pasture and into a riparian
3 area or a loafing area; correct?

4 A. That's correct.

5 Q. Well, except for the 10 percent we talked
6 about earlier?

7 A. Right. Correct.

8 Q. All right. So do you -- you recognize then
9 that the cattle when they've ingested the grass that's
10 been fertilized with poultry litter, they're just
11 moving that phosphorus from one place to another; is
12 that your opinion?

13 A. Yes.

14 Q. As part of the preparation in this case, were
15 you familiar with a paper published by a Mr. Slaton
16 regarding the nine geographic areas in Arkansas and
17 nutrient input trends?

18 A. I can't remember if I reviewed it for this
19 case or not but I believe I've seen it.

20 MR. GARREN: If I may approach, Your
21 Honor?

22 THE COURT: Yes, sir.

23 Q. (BY MR. GARREN) After you've looked at the
24 document, can you tell me, sir, whether or not you
25 recognize it?

1 A. Yes.

2 Q. You've looked at this before, have you not?

3 A. Well after our report was done, but yes, I've
4 looked at it.

5 Q. After your report?

6 A. Yes.

7 Q. When were you first introduced to this? Was
8 it at your deposition or before?

9 A. I can't recall.

10 Q. So you didn't go out and search for this
11 document and it wasn't available to you prior to
12 making your opinion; true?

13 A. I didn't find this document during my search
14 for documents, no.

15 Q. Having since read this document which
16 describes the nutrient trends in northwest Arkansas,
17 does that have an impact on your opinion today?

18 A. No.

19 Q. Okay.

20 MR. GARREN: For the record, this is
21 Oklahoma Exhibit 5101. It's a nutrient input removal
22 transfer of agricultural soils in nine geographic
23 regions in Arkansas. Primary author is Nathan
24 Slaton.

25 MR. MCDANIEL: For the Record, Your

1 Honor, that may be marked for identification as 5101,
2 but our records don't show that it's been admitted.

3 THE COURT: Very well. But he can use
4 it for impeachment.

5 Q. (BY MR. GARREN) All right. Now, back to
6 your bird and waste production, Dr. Dicks, is it
7 correct according to your report that you ignored
8 turkey production for the years 1977 to 1985 because
9 you had no data? Is that right?

10 A. We ignore -- we didn't -- we didn't use the
11 turkey numbers at all in the 51 million, no.

12 Q. Okay. So we don't have any turkey in your
13 waste calculations or bird calculations; correct?

14 A. Well, we have the total amount of waste of
15 295,114 tons. All we did was a simple linear
16 approximation given 51 million inventoried birds.

17 Q. And using that linear regression to determine
18 the amount of birds, that was to supply you where
19 there was missing data; correct?

20 A. Correct.

21 Q. And because it's linear, it assumes
22 that -- well, first off, it doesn't represent the
23 actual population, does it?

24 A. No.

25 Q. Did you do anything to validate the number of

1 birds that you used in your calculations?

2 A. Well, we used the census numbers. I mean, I
3 don't know --

4 Q. Let me -- that's not a just good question.
5 Let me start over.

6 I know what you used, but with regard
7 to -- you did have to employ linear regression. Did
8 you do anything to validate your linear regression to
9 determine missing data?

10 A. No. It was a simple in-between-the-years
11 extrapolation.

12 Q. And you didn't discuss with any corporate
13 representatives of the defendants if they had any data
14 to plug in where you had missing data; correct?

15 A. No, sir.

16 Q. Your answer would be that's a correct
17 statement?

18 A. That's a correct statement. I did not.

19 Q. Thank you. Based upon the reduction and the
20 cost of fertilizer since your 2008 report, would that
21 lower the impact that you have opined to today?

22 A. Yes.

23 Q. And did you actually perform the model that
24 was run for this case?

25 A. I'm sorry. Can you --

1 Q. Yes. The IMPLAN model, did you actually
2 operate it or run it or did someone run it for you?

3 A. I did not run it.

4 Q. And who ran it for you?

5 A. Lisa -- Lisa Keating.

6 Q. And where is she located?

7 A. Berkeley, California.

8 Q. And did you state -- let me ask you this: Is
9 she an employee of yours?

10 A. She is not.

11 Q. Have you ever worked with her before?

12 A. No.

13 Q. And did you ever observe her work before
14 using her in this case?

15 A. No.

16 Q. Do you know her qualifications prior to her
17 doing the work for you in this case?

18 A. No.

19 Q. Did anyone explain to you her qualifications
20 before she performed the work?

21 A. No.

22 Q. Did anyone explain her experience in running
23 the IMPLAN model before running that for you?

24 A. We had discussions about it, yes.

25 Q. Okay. Did you ask her personally about her

1 experience in operating the IMPLAN model?

2 A. Yes.

3 Q. Now, as part of your work in this case, you
4 did not perform any scientific analysis,
5 investigation, or study to determine the economic
6 effects to any of the defendants for not having to
7 deal directly with the disposition of the waste from
8 their -- what their birds generate, did you?

9 A. No.

10 Q. Did you undertake any investigation or study
11 to determine the costs saved by the defendants for not
12 having to deal directly with the disposition of waste
13 generated by their birds?

14 MR. MCDANIEL: Objection. It's
15 argumentative, Your Honor.

16 THE COURT: Overruled.

17 A. No.

18 MR. GARREN: Excuse me, Your Honor, I
19 apologize. I've either written a number down wrong
20 or -- give me a couple of seconds.

21 THE COURT: Yes, sir.

22 *(Discussion held off the record)*

23 MR. GARREN: May I approach, Your Honor?

24 THE COURT: You may.

25 Q. *(BY MR. GARREN)* For the record, Dr. Dicks,

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1 I've handed you Oklahoma Exhibit No. 0147. It's a
2 spreadsheet which is a copy of an exhibit used in your
3 deposition. Do you recall seeing this document?

4 A. Yes.

5 Q. Tell the court what this document is, if you
6 would, please.

7 A. Which sheet? Both sheets or --

8 Q. Yeah. Let me --

9 MR. GARREN: Your Honor, for the record,
10 I have attached a small version, which actually shows
11 the document as it was used previously, and I've
12 simply blew it up so that we could see it easier in
13 court.

14 THE COURT: Thank you.

15 MR. GARREN: It is rather small print.

16 THE COURT: They're both the same?

17 MR. GARREN: Yes, they are, short of not
18 having the exhibit sticker on the large volume --

19 THE COURT: Thank you.

20 MR. GARREN: -- or the larger copy.

21 Q. (BY MR. GARREN) So we can ignore the little
22 one, Dr. Dicks, unless you just want to have the eye
23 strain.

24 A. No problem.

25 Q. Now, go ahead and explain to the court what

1 this document represents.

2 A. Well, this would be the sheet that would
3 be -- excuse me -- the spreadsheet that would be set
4 up for looking at the budgets, the aggregate farm
5 budget, for the poultry, forage, and beef cow
6 enterprises, and the estimated change in expenses and
7 outputs as a result of removing poultry litter from
8 the IRW.

9 Q. Let me ask you about a couple of columns and
10 then we'll dig into this maybe a little bit more.

11 Over to the right of where the spreadsheet,
12 and there is a column of numbers that does not have a
13 column heading on it and the top number is 404. Do
14 you see that column?

15 A. Yes.

16 Q. Tell the court what that column of numbers
17 represents other than where you see the dollar signs
18 in front of the number.

19 A. Those are the sectors that would be
20 identified in IMPLAN as the -- the -- so, for
21 instance, the supplies there, supplies would fall
22 under sector 404 of the IMPLAN model. That's the
23 standard industrial code.

24 Q. And the classification is then the two more
25 columns over, where it says building material and

1 garden equipment and supply dealers?

2 A. That's a different -- that's a different
3 code.

4 Q. Okay.

5 A. And so one of the -- one of the problems of
6 the new model, which we did not use, is that the new
7 model switched to a different code so we were trying
8 make a comparison between the two codes.

9 Q. So my next question is: There is another
10 column there just to the left of the written words I
11 just read that starts with code No. 444. Is that the
12 different code you're referring to?

13 A. That's the different code, yes, sir.

14 Q. What is that code called?

15 A. I can't remember the names of the two codes
16 but they're both -- but are both codes of a sector
17 that is included in one of the two IMPLAN models
18 that's used for creating the impacts.

19 Q. Is the description of the code for the IMPLAN
20 404 code that's shown there, is that an accurate
21 description, where it says building material and
22 garden equipment?

23 A. Well, they're different sectors.

24 Q. What is the sector called that's designated
25 there in 404?

1 A. I don't have that description in front of me
2 so I can't tell you.

3 Q. All right. But that description is set forth
4 in the manual that you can download and easily get
5 your hands on?

6 A. Correct. The NAICS is a code that's
7 available even on the Internet.

8 Q. Okay. Well, we'll look at that in just a
9 minute but let's talk about the spreadsheet.

10 Based upon the column that's headed "Beef
11 Production Total Cows," just to skip to the bottom on
12 that, you would agree with me that shows that even
13 with the use of litter, beef production on its own is
14 losing some 16 million -- \$16,539,458 based upon your
15 work here; is that correct?

16 A. Not -- not necessarily. No, that's not
17 really correct.

18 Q. Well, it is on its own by segregated business
19 as you did in your work; correct?

20 A. As an enterprise, it is not doing a good job
21 of adding value to the -- to the -- to the forage,
22 correct.

23 Q. Well, based on this, you're saying that net
24 farm income is a minus 16.5 million; correct?

25 MR. ELROD: Where are you, Rick? I'm

1 sorry. I'm not following --

2 Q. (BY MR. GARREN) At the same column at the
3 bottom where it says "Net Farm Income," you have a
4 negative 16.5 million for the beef production total
5 cows; correct? You're characterizing it as net farm
6 income, are you not?

7 A. Well, I'm trying to decide whether this is
8 scenario one or if this is the base. So, I mean, I
9 can't tell from what you've given me whether
10 that -- whether those columns -- what I believe is
11 that these columns here to the left that describe the
12 poultry, forage, and beef production enterprises are
13 actually the scenario one and not the base.

14 So when you pull forage -- the poultry litter
15 out, these are the numbers that you would get. That's
16 what I think that that indicates, but I'm not sure
17 enough to look at it.

18 Q. Well, it does say at the very top of this --
19 and maybe that will help and maybe it won't -- it says
20 the difference between scenario one and base --

21 A. Correct.

22 Q. -- and you have three more columns;
23 correct?

24 A. That's correct.

25 Q. So what you're doing is you are finding that

1 difference pulled out of the columns that are shown as
2 poultry, forage, beef production, and aggregate farm,
3 are you not?

4 A. That's correct. So there is a base budget
5 that would look identical to this that has the
6 poultry, forage, and beef production and there would
7 be a scenario one set of budgets.

8 What I'm saying is, this aggregate farm that
9 you're showing me here, I don't know and I would
10 presume that this is scenario one and not the base.

11 Q. We'll come back and we'll try to find some
12 spreadsheets that might identify that.

13 MR. GARREN: If I may approach then,
14 Your Honor?

15 THE COURT: You may.

16 Q. (BY MR. GARREN) Do you recognize the
17 document which has been marked Oklahoma Exhibit 0167
18 entitled, "IMPLAN Input/Output System"?

19 A. Yes.

20 Q. This is what you referred to earlier that is
21 available for anyone to download if they're going to
22 employ the use of this input/output model; correct?

23 A. Correct.

24 Q. And if we go back to appendix 1 in this
25 document at page 16, you will find the codes that you

1 and I were talking about earlier; true?

2 A. Correct.

3 Q. So if we were to look at the prior exhibit of
4 Oklahoma Exhibit 147 in the column of codes, which
5 code classification on the 147 exhibit would we look
6 to identify it in the new Exhibit 167?

7 A. I'm sorry. We're looking for what code?

8 Q. Any of these codes. You have two columns of
9 codes. Which column would we use to look at the
10 descriptor under the IMPLAN model?

11 A. The code on the left would be the IMPLAN
12 code, and the code on the right would be the NAICS
13 code.

14 Q. All right. If we were to look at appendix 1
15 in the -- I'm calling it the manual for the
16 input/output system, Exhibit 167 --

17 A. Correct.

18 Q. -- we would like for 404 to find the supply
19 code that you've used?

20 A. Yes.

21 Q. And that's the first column of the appendix 1
22 where it has the numbers going numerical order from --

23 A. Yes.

24 Q. -- top to bottom; correct?

25 A. Page 24, 404, building materials and garden

1 supply stores, correct.

2 Q. All right. So we can match those codes of up
3 what you've used to run your IMPLAN model by having
4 Exhibit 167 available; correct?

5 A. Well, if there was any impacts in that,
6 that's correct, yes.

7 Q. And those impacts would be evidenced by the
8 spreadsheet whether there are values shown there;
9 correct?

10 A. Correct.

11 Q. So do you see that there is any impact from
12 the code 404 that you have used on the spreadsheet
13 0146?

14 A. There is none.

15 Q. Okay. The first one that we see an impact is
16 under code 425; is that correct?

17 A. Correct.

18 Q. And if we looked at the IMPLAN manual, code
19 425 talks about nondepository credit, intermediation,
20 and related activities?

21 A. Yes.

22 Q. All right.

23 MR. GARREN: Your Honor, I move for the
24 admission of Oklahoma Exhibit 147, the spreadsheet.

25 THE COURT: Any objection?

1 MR. ELROD: I have no objection, Your
2 Honor.

3 MR. GARREN: I'd also move for the
4 admission, so we know what we're talking about, as
5 Oklahoma Exhibit 167.

6 THE COURT: Any objection?

7 MR. ELROD: I think I do object to that
8 on the basis of hearsay.

9 THE COURT: Well, at least part of it is
10 necessary for deciphering the codes; correct?

11 MR. ELROD: I'll withdraw the objection,
12 Your Honor

13 THE COURT: 147 and 167 are admitted.

14 Q. (BY MR. GARREN) Now, Dr. Dicks, in your
15 considered materials, there is a publication that
16 we've talked about before by Dr. Ogishi and
17 Dr. Zilberman.

18 Do you recall that the integrated
19 agribusiness and liability for animal waste
20 publication by those gentlemen?

21 A. No, sir.

22 Q. All right.

23 MR. GARREN: If I may approach, Your
24 Honor?

25 THE COURT: Yes, sir.

1 Q. (BY MR. GARREN) Dr. Dicks, I've handed you
2 Oklahoma Exhibit 151. It's an article entitled
3 "Integrated Agribusiness and Liability for Animal
4 Waste." Principle author is Aya, A-y-a; Ogishi,
5 O-g-i-s-h-i, and the secondary one is David Zilberman.

6 Do you recall the name David Zilberman, sir?

7 A. I know who David Zilberman is, yes.

8 Q. And he's a colleague of Dr. Rausser at
9 Berkeley, is he not?

10 A. Yes.

11 Q. Have you read this paper before?

12 A. I don't believe so, no.

13 Q. You and I discussed it in your deposition,
14 did we not?

15 A. I think you tried to, yes.

16 Q. Do you agree, sir, that there are -- well,
17 let me ask you this, sir.

18 Do you have an opinion whether or not the
19 integrators have any responsibility for the cost of
20 handling and disposing of the poultry waste generated
21 by their birds in the IRW?

22 MR. ELROD: Object, Your Honor; outside
23 the scope of direct.

24 MR. HOPSON: Your Honor, I was just
25 going to say it might have been an appropriate

1 question for Dr. Rausser, but he's not talking about
2 integrator responsibilities in his testimony.

3 THE COURT: Sustained.

4 Q. (BY MR. GARREN) Have you in your work, sir,
5 made any determination on a per-bird basis or a
6 per-pound basis what the difference of income is for a
7 grower versus an integrator on the production of
8 birds?

9 A. No, I have not.

10 Q. Have you been provided that information by
11 others?

12 A. No.

13 Q. In your implementation of the IMPLAN model,
14 did you take into consideration the economics of scale
15 relative to the handling and disposition of poultry
16 waste in the IRW?

17 A. No.

18 Q. Now, I talked about this a little bit
19 earlier. I just want to clarify it.

20 The IMPLAN model is based upon political
21 boundaries essentially; correct?

22 A. That's correct.

23 Q. And so you can run it for a county, a state,
24 or a multiple states area; correct?

25 A. Correct.

1 Q. And you chose the five counties that we're
2 talking about. Did you make any runs outside -- let
3 me ask it this way.

4 Did you apply the IMPLAN model on any area
5 other than the five counties at any time?

6 A. No, sir.

7 Q. And did you apply any of the codes that you
8 can find under IMPLAN, the manual we looked at
9 earlier, that would have a direct or an indirect
10 effect from the -- from water quality issues?

11 Let me rephrase it. Obviously, I've caught a
12 deer in a headlight and I apologize. It wasn't very
13 well-crafted.

14 Are water quality issues any part of the
15 IMPLAN business sectors that you chose when running
16 your model?

17 A. No.

18 Q. Did you make any determination whether or not
19 hay and cattle producers are all also poultry-growers?

20 A. No.

21 Q. Do you have any knowledge of your own whether
22 or not in the IRW all hay and cattle producers are
23 also poultry-growers?

24 A. They are not.

25 Q. All right. You have some experience with the

1 NRCS and the extension services in the IRW, do you
2 not?

3 A. Yes.

4 Q. And so based on that, you know that not all
5 hay and cattle producers are also poultry-growers?

6 A. Correct.

7 Q. Now, would you agree with me that those who
8 do raise hay and cattle within the five-county region
9 that you chose to use may, in fact, sell their cattle
10 outside that region?

11 A. Yes.

12 Q. And your IMPLAN model did not capture the
13 flow of dollars that would occur as a result of that
14 transaction; correct?

15 A. Does it capture the flow of dollars outside
16 of the IRW?

17 Q. Yes, sir.

18 A. No, it does not.

19 Q. I noticed materials -- I noticed documents in
20 your materials that related to the hauling out of
21 litter in the IRW.

22 You're aware that's occurring at this time;
23 correct?

24 A. Yes.

25 Q. And did your IMPLAN model take into

1 consideration the flow of dollars from the sale of
2 that litter to those outside the IRW?

3 A. No.

4 Q. So to kind of summarize on that point, if
5 activity dealing with flow of dollars occurs as a
6 result of something in the IRW but is connected to
7 something outside the IRW, your model doesn't pick
8 that up; correct?

9 A. The model only captures the economic activity
10 in the five-county area.

11 Q. So if Roger Collins, who testified in court
12 in this case that he invested half a million dollars
13 in hauling equipment and, in fact, hauls to Enid, to
14 areas near Texas, and other areas, when he takes that
15 and sells it someplace, the litter, we're not
16 capturing those dollars in your IMPLAN model;
17 correct?

18 A. Some of them, yes.

19 Q. But not all of it?

20 A. But not all of them, correct.

21 Q. Let me ask you this, sir: As an economist,
22 is it your opinion that the economic effects to the
23 hay and beef industry in the IRW are truly reflective
24 of the value of the litter by solely limiting that
25 model to a five-county region?

1 A. I'm sorry. Can you rephrase that?

2 Q. Yeah. As an economist, is it your opinion
3 that the economic effects to the hay and beef industry
4 that you've opined to in the IRW are truly reflective
5 of the value of that litter by solely limiting the
6 model to the five-county region?

7 A. It certainly measures the impact in the
8 five-county region, absolutely.

9 Q. But that's all it does?

10 A. That's correct.

11 Q. All right. Have you done any independent
12 research on how far poultry waste can be shipped and
13 sold?

14 A. No.

15 Q. If the model were run to represent sales of
16 litter outside the IRW, would that show as a positive
17 effect in the results of the model?

18 A. I'm sorry. Can you say that again?

19 Q. Yeah. Would the sale to those outside of the
20 IRW -- the sale of litter to those outside the IRW be
21 reflected as a positive in the flow of dollars in your
22 IMPLAN model?

23 A. I guess what you're asking is, is there
24 economic activity from selling the litter outside the
25 watershed; is that correct?

1 Q. I thought we assumed that that's the case in
2 my question.

3 What I'm trying to ask is, if you included
4 these other regions, would it pick up as a positive
5 effect the sale of that litter in these other regions?

6 A. That's a good question. There would be a
7 redistribution of income, both regionally and within
8 sectors.

9 Q. Okay. And since you didn't perform what we
10 talked about earlier as a net cost-benefit analysis,
11 you don't know what the net benefit of removing litter
12 from the IRW is; correct?

13 A. I have not done a benefit-cost analysis.

14 Q. All right. Now, this type of plan, the
15 input/output model, the IMPLAN model, that you
16 actually performed does not take into consideration
17 things such as personal safety or security or other
18 quality of life improvements, does it?

19 A. There's no positive or negative externalities
20 considered, no.

21 Q. But this IMPLAN model does have the ability
22 to model the effects of tourism and recreation;
23 correct?

24 A. It could, yes.

25 Q. And it has the ability to model the effects

1 of loading, handling, and hauling litter outside the
2 IRW, if you chose to do so; correct?

3 A. It does, yes.

4 Q. And would you agree that if you're, in fact,
5 removing some litter from the IRW, you would have
6 those kind of activities that should be modeled?

7 A. I don't believe so, no.

8 Q. Okay. So you don't think if litter needs to
9 be removed, that there would be additional activity --
10 economic activity, the flow of dollars, from the
11 hauling of that litter?

12 A. Not necessarily in the -- in the five-county
13 area, no, sir.

14 Q. Okay. You did not ask the model to perform
15 any effects from business sectors associated with
16 pollution abatement; correct?

17 A. Correct.

18 Q. And you did not ask the model to perform the
19 effects of any environmental cleanup or associated
20 business sectors; correct?

21 A. I really didn't ask the model to do anything.
22 I mean, you keep --

23 Q. When a model runs --

24 A. I didn't input any of those things into the
25 model, no, sir.

1 Q. But you chose which ones to display for the
2 results; correct?

3 A. That's correct.

4 Q. And you chose not to display those, the
5 environmental impacts, the cleanup, or associated
6 business sectors?

7 A. I don't know what you mean by display them.
8 I did not -- I was not asked to do that. I did not
9 put any impacts in the model to change the final
10 demand for any of those products, no, sir.

11 Q. Okay. Is it true that increased business in
12 the five-county region would be viewed as a positive
13 in the model?

14 A. I'm sorry. Say that --

15 Q. Increase in business, economic increase in
16 the business --

17 A. Yes.

18 Q. -- say a business grows, is that viewed in
19 the model as a positive, positive dollars?

20 A. Yes. Growth in economic activity and an
21 increase in economic activity would be a positive.

22 Q. So to the extent that new businesses are
23 either added or businesses that exist grow further,
24 they would reflect that positive number, if you would,
25 in the model; correct?

1 A. That's correct.

2 Q. So if we had new businesses, such as
3 environmental operations, trucking or hauling, if you
4 chose to reflect those in the model, that would likely
5 show a positive input?

6 A. It could, yes.

7 Q. Likewise, the recreation and tourism
8 industry, if it increased, it would reflect a positive
9 input?

10 A. Yes.

11 Q. Okay.

12 MR. GARREN: If I may approach, Your
13 Honor?

14 THE COURT: Yes, sir.

15 Q. (BY MR. GARREN) Dr. Dicks, I've handed you
16 what's been marked Oklahoma Exhibit 0144, a document
17 that was reviewed in your deposition.

18 Can you tell the court what this is?

19 A. 0144 looks to be a budget for the beef
20 production activity.

21 Q. Is this a document that you would have
22 prepared in your work in this case?

23 A. Yes.

24 MR. GARREN: Move for the admission of
25 Oklahoma Exhibit 0144.

1 MR. ELROD: No objection, Your Honor.

2 THE COURT: 144 is admitted.

3 Q. (BY MR. GARREN) Now, when you performed
4 these budgets, you did so with the intent to be
5 accurate as possible, did you not?

6 A. Yes.

7 Q. And looking at this beef production budget,
8 does it show a return above all specified costs as a
9 negative \$23.5 million to the beef production
10 business?

11 A. Yes.

12 Q. So this spreadsheet does not employ the use
13 of any chemical fertilizers, correct, in its
14 consideration?

15 A. It doesn't appear to be, no.

16 Q. And, in fact, this is under a scenario if
17 there was just the use of litter by this beef operator
18 who owned it; correct?

19 A. The base scenario, yes.

20 Q. So based on this, we see another example in
21 your calculations where a beef operator who owns his
22 litter is actually losing money in the watershed; do
23 you agree with that?

24 A. Well, I'll just take exception to that. I
25 think one of the things that you're missing here is

1 that there's a shadow price in there for pasture and
2 hay. If this person was actually purchasing that
3 pasture and hay -- if you look up there where it says
4 pasture and hay, it's \$35 a ton for the pasture and
5 \$70 a ton for the hay. They're going to purchase 6.94
6 tons of that pasture and 2.52 tons of that hay.

7 This is a shadow price so that we can look at
8 the enterprise budget of beef with respect to the
9 enterprise budget of hay. What this really tells me
10 is is that while the guy is making a good deal of
11 money on his hay enterprise, he is losing money on his
12 beef enterprise. And so consequently, you'd be
13 correct that he is losing money, but what it says is
14 that he's not doing a very good job of marketing his
15 hay.

16 Q. But, in fact, he may be using his hay under
17 your scenario; correct?

18 A. He is using the hay to feed his cattle, his
19 hay. But I guess what I'm saying is, he'd be better
20 off at this point if he got rid of all the cattle and
21 sold the hay.

22 *(Discussion held off the record)*

23 MR. ELROD: Your Honor, can I beg the
24 court for indulgence, please? I have a funeral at one
25 o'clock, unavoidable. What my proposal would be is

1 that we complete -- we interrupt the witness on the
2 stand this afternoon at 2:30, or whenever your
3 afternoon break is, and complete Dr. Dicks immediately
4 after that afternoon break and then put the witness
5 back on the stand. If the court would do that for me,
6 I sure would appreciate it.

7 THE COURT: Any objection?

8 MR. GARREN: We talked earlier. I don't
9 have any objection to that because it would be during
10 the direct of Dr. Sullivan that that would be
11 interrupted. So I don't have a problem, Judge.

12 THE COURT: All right.

13 *(Discussion held off the record)*

14 Q. (BY MR. GARREN) Again, talking about the
15 IMPLAN model, Dr. Dicks, you agree, and it's true,
16 that the IMPLAN model does not take into consideration
17 what is referred to as pecuniary economies; that is,
18 purchasing at bulk rates or volume pricing; correct?

19 A. Well, yes and no. It does not take into
20 effect pecuniary economies, but no, you didn't get the
21 definition right.

22 Q. All right. I'll come back to that then and
23 let's try and clean that up.

24 Tell the court what pecuniary economies is by
25 definition.

1 A. Pecuniary economies means that you can
2 purchase large quantities at a cheaper price or you
3 can sell larger quantities and gain a better price.

4 Q. A lot of times that is a function of scale of
5 a business and its operations; correct?

6 A. Correct.

7 Q. Did you make any adjustments in your model
8 for the pecuniary economies in this case?

9 A. No, sir.

10 Q. Could the pecuniary economies be relevant to
11 a hub-and-spoke concept for the use in hauling and
12 disposing of poultry waste outside the watershed?

13 A. Yes.

14 Q. And so the record's clear, you didn't specify
15 any business sectors for that concept of loading and
16 hauling litter out of the watershed?

17 A. There is -- again, in the poultry sector,
18 there is -- part of that is -- there is hauling of
19 litter. And so as you look at the production function
20 that goes along with poultry, litter and litter
21 activities are part and parcel to that activity.

22 Q. That litter activity, though, I'm assuming,
23 based upon what you've told us earlier, would be
24 limited generally within the scope of the IRW;
25 correct?

1 A. That's correct. But keep in mind that the
2 tons of litter that -- every one of those dollars of
3 value of poultry has a dollar value with it as an
4 input in terms of the poultry litter handling and
5 storage and all those capabilities.

6 It doesn't matter whether -- for the model,
7 it doesn't matter whether that is shipped outside or
8 inside. Every -- every dollar value of poultry that
9 you stimulate that economy to is going to just -- it's
10 going to take out that amount of litter.

11 Q. But it's missing the other side of the
12 equation if it goes outside the IRW; correct?

13 A. Well, to the extent that there's expenditures
14 outside of the IRW. So if he stops for fuel, if he
15 has a -- if he buys another apparatus outside, it does
16 not take that into account, no, sir.

17 Q. And what if he receives income from outside
18 the IRW; that's not picked up either, is it?

19 A. Well, if he lives inside the IRW, it's part
20 of that, yes, sir.

21 Q. Okay. Now --

22 THE COURT: Mr. Garren, it's apparent
23 we're going to go beyond lunch here. Let's take our
24 lunch recess at this time.

25 MR. GARREN: Okay. Thank you, Your

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1 Honor.

2 (Lunch recess was taken)

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C E R T I F I C A T E

I, Brian P. Neil, a Certified Court Reporter for the Eastern District of Oklahoma, do hereby certify that the foregoing is a true and accurate transcription of my stenographic notes and is a true record of the proceedings held in above-captioned case.

I further certify that I am not employed by or related to any party to this action by blood or marriage and that I am in no way interested in the outcome of this matter.

In witness whereof, I have hereunto set my hand this 11th day of January 2010.

s/ Brian P. Neil

Brian P. Neil, CSR-RPR, CRR, RMR
United States Court Reporter